

S 451
.T4 C6
Copy 1

Catholic Immigration and Farm Guide



—BY—
Rev. Father Coma

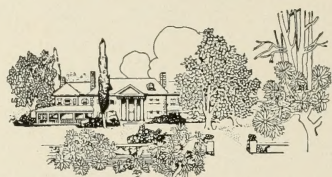
The Catholic Immigration and Farm Guide



By
REV. FATHER COMA

Rector of St. Joseph's Church
Beeville

In the diocese of Corpus Christi, Texas



INTRODUCTION

WE have often wondered why people of congested cities cling so tenaciously to city life when fertile tracts of land lie waste, that could bring plenty to any one who shirks not work. The Southwest of Texas offers many an opportunity of bettering your temporal interests whilst it detracts nothing from your spiritual welfare as you can see if you carefully peruse the pages of this book.

The author Rev. John Coma, compiled these pages to induce those who wish to better their lot in life to settle in Southwest Texas. He has practically spent his whole life in these regions and consequently can give you valuable information concerning them. He can moreover direct you to an expert and trustworthy farmer, who will give you the necessary advice in selecting land and cultivating it. You will be told nothing that is not founded on facts or that cannot be demonstrated in every detail.

©CLA428136

COPYRIGHTED 1915.

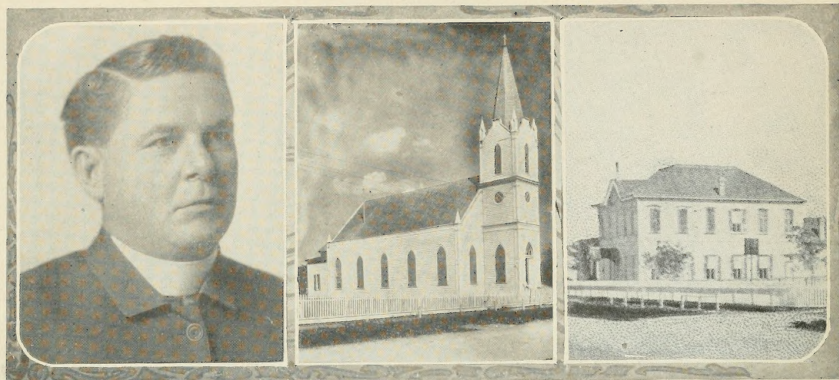
By Rev. John Coma.

and

John Kasmeier



Rt. Rev. Paul Joseph Nussbaum, C. P. D. D.
Bishop of Corpus Christi, Texas



What Is Beeville? **Where Is Beeville?** **What Beeville Has!**

Beeville is a modern little city with a progressive citizenship numbering 5,000 souls.

Beeville is a city of beautiful residences; fine climate and unsurpassed possibilities as a city of great future.

Beeville is surrounded by a fine farming country; the soil produces diversified crops that are revenue-producers.

Beeville's tributary territory is superior as a cattle-raising country; here are grown the finest cattle in the land.

Beeville is located on the Gulf Coast.

Beeville's winters are mild; the summers are cool, the Gulf breeze sweeping over the land making the nights ideal.

Beeville is advantageously located in the center of a great country; it is in the center of the south's best section and surrounded by a country that looks to it as a wholesale center.

Beeville has two railroads entering the city with prospect of a third in the near future.

Beeville has numerous industries but is eager to locate others still and the citizenship stands ready to assist in financing such enterprises.

Beeville has an excellent educational system; both public and parochial.

Beeville is a city of religious inclinations; located here are churches of all denominations.

Beeville, Bee County, Texas, is an excellent place to settle and unbiased information will be furnished either by Father John Coma of St. Joseph's Catholic Church, P. O. Box 206, or the Young Men's Progressive League. A fee of 25 cents will be charged to cover the expense of correspondence involving on Father Coma.

The San Antonio & Aransas Pass Railway

REACHES

Best Towns and Best Lands in Central and Southwest Texas

CONNECTS

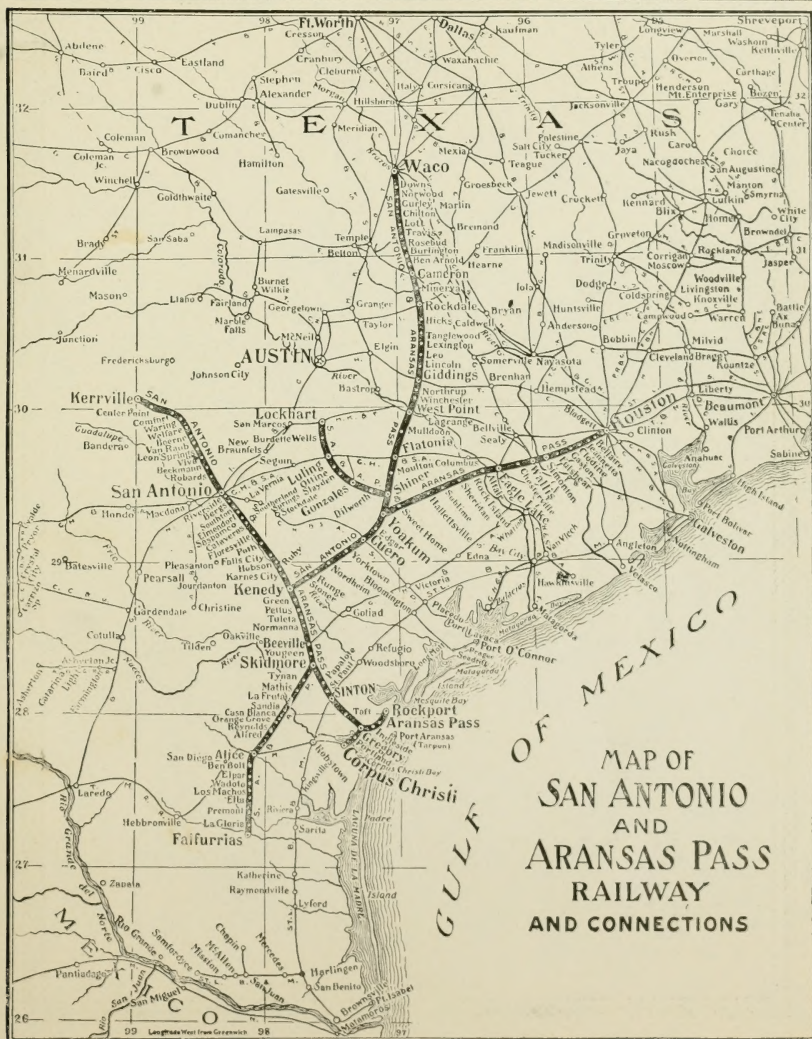
With All Important Roads. See The Map!

For Information Address

GEO. F. LUPTON, General Passenger Agent

J. C. MANGHAM, General Freight Agent

SAN ANTONIO, TEXAS



Y. BENAVIDES, President

P. K. MIMS, V-President

First State Bank
and
Trust Company

R. K. MIMS, Cashier

N. J. VELA, Asst. Cashier

J. K. BERRETTA, President

Laredo National
Bank

B. M. ALEXANDER, V-President

SAM W. BROWN, Cashier



From left to right. Top row: Mr. Engle, City Commissioner; C. E. Williamson, Mayor; Dan Troy, County Clerk. Middle row: Mr. Fenner, County Surveyor; Rev. John Coma, Pastor St. Joseph's Church; C. P. Eldson, City Marshall. Bottom row: Stafford Rees, Tax Assessor; J. M. Cox, County Judge; Mr. Barber, County Treasurer.



HIGH SCHOOL

BEEVILLE, TEXAS

MADDERA, Superintendent



THE BEEVILLE PUBLIC SCHOOLS are among the best in the State of Texas. The Beeville High School is affiliated with the University of Texas. Its affiliation is of the first rank. The school offers courses in Latin, Spanish and German, and also maintains a commercial course. Graduates from its literary course may enter any University in the country without condition, while graduates from its commercial course are prepared to enter practical business life.

District, County & City Officers

Beeville, Texas.

DISTRICT OFFICERS:

Hon. F. G. Chambliss, Judge; District Court
" Z. T. Partain, Clerk; District Court
" T. P. Morris, Attorney; District Court

COUNTY OFFICERS:

Hon. T. M. Cox,	County Judge
" T. C. Buerger,	" Commissioner
" H. E. May	" "
" C. I. Swan,	" "
" Gus. Natho,	" "
" Dan Troy,	" Clerk
" Chas. Troy,	" Attorney
" W. S. Barber,	" Treasurer
" Thos. Craven,	" Tax-Assessor
" S. E. Rees,	" Tax-Collector
" J. S. Fenner,	" Surveyor
" J. A. Risenhoover,	" Supt. of Schools
" J. A. Thornton,	" Sheriff

CITY OFFICERS:

C. E. Williamson,	Mayor
W. T. Thompson,	Commissioner
G. M. Engle,	Commissioner
C. P. Eidson,	Marshall
W. G. Gayle,	Secretary

DOUGHERTY
: : : A N D : : :
DOUGHERTY
LAWYERS



BEEVILLE, TEXAS

If You Are Interested In
Bee County

Subscribe for the
Beeville Picayune
*Bee County's Leading
Newspaper*

Established 1890

Subscription \$1.50 A Year

Write us for any information you desire regarding
the price of land, climate, rainfall, etc.

Barron & Atkins,

PUBLISHERS

Beeville, Texas

SUBSCRIBE FOR

The
BEEVILLE BEE

R. W. BARRY, PUBLISHER

And get First-Hand Information about the The Great Beeville Country. The Bee has been working in the midst of this magnificent land for thirty years.

Sample copies of The BEE cheerfully furnished on application.

R. B. BARRY, Publisher



PRESCRIPTION
SPECIALISTS
R&R

We serve the kind of Soda's
that folks walk a mile for.

The right place to buy your
Drugs, most complete Stock
in Beeville.

City Drug Store

A. W. Krueger



Ballard Drug Store

"Our Customer Is Always Right."

SOLE AGENTS FOR

State Adopted School Books
School Supplies

Nyal's Family Remedies

DRUGS, DRUGGIST'S SUNDRIES, ETC.

Prescriptions Filled Day or Night

"Does Quality and Accuracy Count With You"?

BALLARD DRUG STORE

BEEVILLE, TEXAS

Bee County Cannot Be Surpassed As A Cattle Raising Section

Some of the world's finest herds have had their origin in Bee County. Residents of all states, sections and lands come here to buy animals for a starter.

W. J. Staton, in the cattle business here for twenty odd years, has sent his cattle to all climes. His business has reached magnificent proportions; so large that every week he has at his ranch prospective buyers from other states.

Mr. Staton makes a specialty of Registered and Grade Red Polled, Durham and Hereford Cattle.

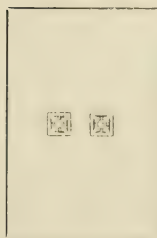
His cattle are all immune from tick fever and are dipped; and can be shipped to any section.



DURHAM



HEREFORD



RED POLLED

MR. STATON solicits correspondence.

By Inquiry you will find that his herds are well known and highly sought after



KNIGHTS OF COLUMBUS

The Society of
Quality





BEEVILLE MISSIONS.

Top—Our Lady of Victory, Beeville, Texas.
Middle—Blessed Sacrament, Normanna, Texas.
Bottom—Sacred Heart—Pettus, Texas.



ST. MARY'S ACADEMY

ST. MARY'S ACADEMY, a boarding school for young ladies and a day school for boys and girls, under the direction of the == Sisters of Divine Providence. The academy is delightfully situated on the outskirts of the city. It affords the pupils every opportunity for a thorough and refined education. The teachers are all normal-trained and hold State certificates.

Primary, Preparatory, High School, Commercial and Music departments.

Beeville, Texas

J. W. BROWN & COMPANY INSURANCE

FIRE, TORNADO, PLATE GLASS AND SURETY

Beeville Bank and
Trust Company

JOHN BURKE
Land and Cattle Owner

ED. BURKE
Land and Cattle Owner

First National Bank
Beeville, Texas

Wolfman & Katz

BEEVILLE, TEXAS.

Ready - to - Wear Garments,
Dry Goods and Shoes

for Ladies, Misses and Children

Commercial National Bank

Beeville, Texas.

FOR SALE

570 ACRES

200 IN CULTIVATION

5 1-2 MILES FROM BEEVILLE

BEST LAND IN COUNTY

THREE WELLS---4 HOUSES

G. B. O'NEIL

P. O. Box 231

BEEVILLE, TEXAS

Cox and Cox

LAWYERS



Beeville, Texas

D. A. Barber & Bro.

Staple and Fancy
GROCERIES

BEEVILLE, : TEXAS

Jesse A. Chase

ALL KINDS OF
INSURANCE

General Agent

American Indemnity Co.
SURETY & CASUALTY

Beeville, Texas

Meyer's Variety Store

Notions, China, Glassware,
Housefurnishing Goods

5c, 10c & 25c Goods
Our Specialty

P. O. BOX 443

Chas. H. Gregory & Brother

BEEVILLE CASH STORE

Dry Goods, Clothing,
Millinery, Hats, Caps,
Boots, Shoes, Etc.

BEEVILLE, : TEXAS



L. SINNOT

BEEVILLE, TEXAS

Knights Cut Rate

Cash Grocery

BOX NO. 491

Beeville, Texas

Beeville Hospital

An institution for the
treatment of Surgical
and Non-Contagious
DISEASES

Operated By

J. H. LANDER, M. D.

W. E. McKinney

Beeville, Bee County

Texas



Krueger Hardware Co.,

(INCORPORATED)

Dealers In
Shelf and Heavy
HARDWARE

A. A. Schwab

THE LEADING

Watchmaker
& Jeweler

OF BEEVILLE

We are also guaranteed
OPTICIANS

Bee Windmill and Plumbing Co.

Water Supplies
Samson & Eclipse Windmills

Plumbing and Tin Work
A Specialty

BEEVILLE, : TEXAS

J. M. Teague

Dealers In all Kinds of
Wholesale and Retail
FEED, FIELD AND
GARDEN SEED

Carries the Largest Stock South
of San Antonio
Beeville, Texas.

Baker & Strout LAWYERS





J. A. Patton

Dealer in all kinds of

House Furnishings

Beeville, : : Texas



Beeville Progressive League

DR. EGBERT, PRESIDENT

**W. A. Mussett
Grocery
Store**

For A Friendly Chat See

Mr. Rees

**Produce Co.
Beeville,
Texas**

**Burrows
Hardware
Company**

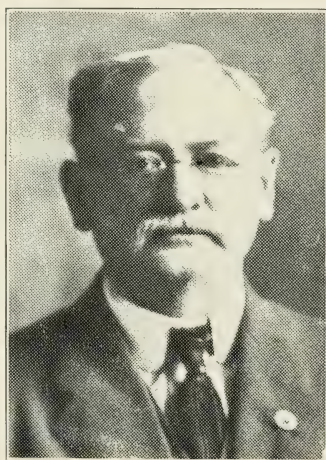


SERVICE ENG. Co. S.A.

J. W. COOK & SON, Beeville

Thurston Hospital

BEEVILLE, TEXAS



DR. D. M. THURSTON, Founder

Most modern appointments and Sanitary
Equipments in Southwest Texas.

MRS. D. M. THURSTON, Manager

Get Acquainted
With

T. T. Marsden

Beeville, Texas



Catholic Lady Foresters

Beeville, Texas



Meinrath's
Bakery

Corley
Painting Co.

Malone's Mattress
Establishment

Thompson's
Livery Stables

Hunt Garage



Stephenson &
Heldenfels
ARCHITECTS

BEEVILLE

::

TEXAS

BUECHER'S

MEAT MARKET



Catholic Chapel

Erected by

Mrs. James McGloin
Yougeen, Texas

Five Miles South of Beeville
on S. A. & A. P. Railway.



Skidmore, Texas

Situated in Southwest Texas, Corpus Christi Diocese, on the S. A. & A. P. railroad, and a branch line thereof. It is about eleven miles South of Beeville, Texas. It has grown to its present size within the last six or eight years. Its population is about 1,200. It can boast of three churches for whites, one of them being Catholic. It has productive soil as a general rule. The climate is ideal. At present there is much talk about the finding of oil.

Obrecht Meat Market

Beeville, Texas



Ursuline Academy

San Antonio, Texas

Resident and Day Educational Institution, for Young Ladies and Misses. The sixty-fifth academic year opens September, 1915. Primary, Preparatory and High Schools. Schools of Music, Painting, Dramatic Art, Plain and Ornamental needlework.

The Ursuline Nuns have stood in San Antonio for sixty-four years, for all that is best in education and culture, but above all for Truth and Religion. A lofty conception of life, a high sense of duty, a noble type of womanhood, thorough scholarship, physical health and vigor are the standards set up for your daughters.

New, airy and commodious building erected according to the latest and most approved hygienic principles.

Send for Catalogue

Rev. Mother Prioress



OUR LADY OF THE LAKE COLLEGE

A SELECT BOARDING SCHOOL
FOR GIRLS AND YOUNG LADIES

Preparatory, Grammar, High School
and College Courses

SPECIAL ATTENTION GIVEN TO
Music, Painting & Domestic
: Science :

AFFILIATION:

Both Academy and College affiliated to the Catholic
University of Washington

CURRICULUM:

Solid, Comprehensive and Practical.

EQUIPMENT:

Complete Laboratories, Physics and Chemistry.
Well appointed Play-Grounds and Gymnasium.

MODERN IMPROVEMENTS:

Steam Heating, Electric Lights, etc. etc.

LOCATION:

Salubrious and Convenient to City.
One block from I. & G. N. N. Car Line

Our aim is to give a most practical Education.

Applications now received for next September. Send for our new catalog and
illustrated year book.

SISTERS OF DIVINE PROVIDENCE
LAKE VIEW :: SAN ANTONIO, TEXAS



LAREDO, TEXAS

Top row, left to right—Rev. Thomas Coma; Msgr. C. Jaillet; Rev. J. Montana.
 Middle row, left to right—Rt. Rev. D. Manuey; Rt. Rev. Peter Verdaguer; Rt. Rev.
 John C. Neraz. Bottom row, left to right—Rev. L. Plana; Msgr. Francis Neinsen;
 Rev. A. Serra.



LAREDO, TEXAS

Top row, left to right—Rev. Emilio Ylla; Rev. Alfred E. Berthoin; Rev. E. Coll.
 Middle row, left to right—Rev. C. M. Brachet; Rev. A. Larroque; Rev. A. M. Souchin.
 Bottom row, left to right—Rev. Peter Puig; Rev. Louis Genolin; Rev. Felipe Caballero.



St. Augustine Church, Laredo, Texas, Rev. José Coma, Pastor.

Laredo, Texas

LAREDO is 154 miles south of San Antonio; 161 miles west of Corpus Christi, and 168 miles north of Monterey. Its population is 18,000. The average temperature is 77 deg. Fh. The property valuation of Laredo is something like \$12,000,000.00.

Perhaps the best feature of the Laredo country, from a residential standpoint, and what some regard as her greatest resource, is her splendid climate. In summer when the papers are filled with accounts of sunstrokes, etc., and people in other parts are suffering with the sultriness and humidity, we have a breeze all day and the most delightful nights of all the year; in winter when our northern brothers are shoveling snow and ice and shuddering in the cold, the house-wife of Laredo is picking roses. The Pacific Coast, world famed for its mild and pleasing climate, has not an inch the best of us, except (and that temporary) better known and more extensively advertised. The day is not far distant when the tourist of the north and east will come to see us by thousands in both extremes of the year.

Laredo as a business center has many things to be proud of; she has three strong financial institutions, a daily and several weekly and semi-weekly newspapers; she has four railways with twelve passenger trains leaving and arriving daily, an adequate water supply, a good fire department, twelve churches of various denominations, a splendid school system, many fraternal organizations, a competent police force; is operated under a most liberal charter approaching that of commission form of government; Laredo has an army post of considerable importance; many beautiful plazas, a fine climate, and beautiful buildings, two ice factories, a planing mill, cotton gins, several brick plants, a steam laundry, street cars, electric lights, natural gas, railway shops, and various other industries in full swing. She has splendid coal mines adjacent to the city; Laredo's fertile soil and equable climate have made the possibilities of citrus fruit culture very great. Laredo ships two-thirds of the "Bermuda" Onions raised in Southwest Texas and a big per cent of the world's supply.

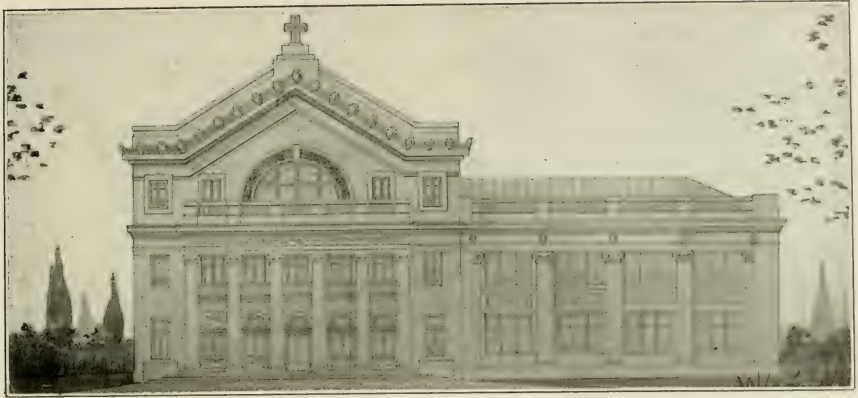


URSULINE ACADEMY

"Riverview"



LAREDO, TEXAS



Mercy Hospital

Laredo, Texas

Laredo's Most Modern Hospital.

The Texas-Mexican Railway

Traversing

“The Land of Opportunities”

Oil, Natural Gas, Plenty of Cheap and Good
Land for Farming and Stock Raising.

S. N. JOHNSON, Laredo, Texas

WHOLESALE DEALERS IN

**LAREDO STEAM PRESSED BRICK and
REISER DRY-PRESSED
FACE BRICK**

SAMPLES AND PRICES UPON APPLICATION

The One Price Department Store

The Up-To-Now Merchandising
Established on the Sunny Rio Grande.
Everything to wear for Humans.

MAIL ORDERS GIVEN PROMPT ATTENTION.

AUG. C. RICHTER

Laredo's Most Up-to-Date

Dry Goods
**Department
Store**

EDWARD CRUZ

A Deutz

C. Deutz

A. Deutz & Brother
HARDWARE

Mining and Agricultural Imple-
ments, Machinery and Supplies.

LAREDO, TEXAS



1) Reverend Mother Jeanne
Chezard de Matel, Foundress of
the Order of the Incarnate Word
and Blessed Sacrament. Born in
Roane, France, Nov 6th, 1596.
Died in Paris, September 11th,
1870.

(2) Rev. Mother Claire, died in
1898.

(3) Rev. Mother St. Ange, died
in 1892.

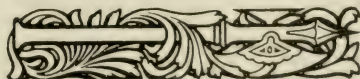
(3) Sister Dominic, (L. S.,) died
in 1907.

(5) Sister Ephrem, died in 1912.



Academy of *Incarnate Word* *and* *Blessed Sacrament*

Brownsville, Texas





St. Patrick's Cathedral, showing view of interior, Corpus Christi, Texas, built by Rt. Rev. Dominic Manuey, First Vicar Apostolic of Brownsville.

Corpus Christi Diocese.

Corpus Christi, formerly known as the Vicariate of Brownsville, was erected into a Diocese in 1913. It comprises the counties of the Southern triangular point of Texas. It has a population of about 100,000 Catholics; the great majority of them are Mexicans.

The present and first incumbent of the newly created Diocese is Rt. Rev. Paul Joseph Nussbaum, C. P. D. D., consecrated Bishop in the Passionist Monastery Church at West Hoboken, New Jersey, by the Most Rev. John Bonzano, Apostolic Delegate to the United States.



A FEW CHURCHES OF CORPUS CHRISTI DIOCESE.

Top—Immaculate Conception Church, Goliad, Texas; Middle, left—Our Lady of Refuge, Refugio, Texas; Middle, right—St. Francis de Paula, San Diego, Texas; Bottom—St. Gertrude, Kingsville, Texas.

- For -
Sale or Rent

*984 ACRES of LAND
about Three Miles
from Leming in ATASCOSA
COUNTY, on the S. A. U.
& G. R. R., about half in
cultivation. Near Church,
School and Gin. For descrip-
tion, price and terms address.*

JOHN DUNN

BOX 122

Corpus Christi, Texas



Top—St. Boniface, German-Bohemian, Corpus Christi, Texas.
 Middle—Spohn Sanitarium, Sisters of Incarnate Word, Corpus Christi, Texas.
 Bottom—Corpus Christi Church, Corpus Christi, Texas.



*Academy
of Incarnate Word
and Blessed Sacrament
Corpus Christi, Texas*



Boarding and Day School

VINCENT BLUNTZER, President
R. GIVEN, 2nd Vice-Pres't
GEO. J. MERRIMAN, Asst. Cashier

EDWARD R. KLEBERG 1st Vice-Prest
GEO. R. CLARK, Cashier
GILBERT McGLOIN, Asst. Cashier

First State Bank

CORPUS CHRISTI, TEXAS

A Guarantee Fund Bank

SURPLUS & PROFITS - - - \$ 80,000.00

CAPITAL - - - - - \$100,000.00

INTEREST PAID ON TIME DEPOSITS

Corpus Christi National Bank

The Corpus Christi National Bank invites correspondence or a personal visit from those desiring information regarding the Corpus Christi country. Corpus Christi with its beautiful hotels, delightful climate, magnificent bathing, fishing and hunting, is one of the great resorts of America today. We shall be pleased to make hotel reservations for you or your friends. The Corpus Christi National Bank is the oldest and strongest bank in the Corpus Christi section—Capital and Surplus \$350,000.00.

Maxwell P. Dunne

UNDERTAKER

Funeral Director & Licensed
EMBALMER

511 Starr St. Corpus Christi, Tex.



PART II

Universal Farming

AS PRACTICED BY A
SCIENTIFIC
FARMER

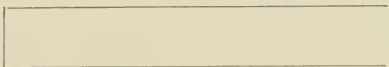


COPYRIGHTED 1915
By JOHN KASMEIER
and
Rev. Father Coma



have farmed for forty years and have always given farming a study. When in nineteen hundred and eleven I was visited by hundreds of farmers and business men to see the wonderful results I had in raising a crop, they all admired it, and admitted that farming like this was our only hope for our great nation. But what impressed me more than all the praises that I received was the remark made by Mr. Douglas, president of the First National Bank of Shawnee, Oklahoma. When he walked through my crop he took off his hat and said to me, "John this is all beyond my expectation, you surely have made farming a study." This word of Mr. Douglas, 'study,' means so much in reference to large crops, and yet how indifferent in practice are some of us.

—*John Kasmeier.*



Introduction

The careful reading of this book will give the intelligent and industrious homeseeker a chance to better his conditions. He will find that nothing is advocated in these pages that will deceive him and deprive him of the fruits of hard labor. The idea of the whole is to caution against unpremeditated bargains that will cause heart breaks rather than bring expected prosperity. We want to caution the buyer to find out all about the land, its production and its cultivation, before he will commit himself to something he might regret.

If you come to settle, get acquainted with our method of farming. If you do not understand farming sufficiently to have all desired success, we can teach you.

If you wish to get rich quick, this is no place for you. In fact the day is yet to come when you will find that place where you can get rich without industry. It is the exception rather than the rule, as you know by experience, that a man gets rich through mere good luck. You will have to earn your bread by the sweat of your brow no matter where you go. But we can make it easier for you in this part of Texas, if you follow our advice.

California is praised as the land of plenty. Still they must gather many a crop from irrigated desert lands. Now whilst we are advocates of irrigation, we can at the same time boast of better soil in Southwestern Texas. Besides this we have a large supply of good water gained through windmills and gasoline engines at a depth of 100-125 feet and in many places at even a less depth. This we can cause to play on our lands with less expense than California ever could afford to do.

Southwestern Texas at present writing is still, to a quite large extent, a great expanse of prairie land overgrown with mesquite and cactus. To the ordinary person it would appear a big tract of unproductive soil. But the initiated knows the wealth hidden in its bowels. It takes the careful investor to bring it out.

We do not hold that all the soil is equally productive, but we can point out to you vast tracts of land suitable for any one who does farm on a scientific scale and not in a haphazard way.

Southwestern Texas could be made the best truck growing country in the United States. You can raise a crop of some kind every month in the year. The climatic conditions are next to perfect. The rainfall reaches the medium in comparison with the other parts of the State. And whilst there are a few hot months with little rain they will be outbalanced by the rest of the year by any one who knows how to make use of opportunity.

In the North the farmer has practically only four months in which he can raise a crop and this in the summer months. Here you can raise the finest truck in Winter, whilst the North is covered with snow and ice.

Prospective settlers would do well to consult us, as we can be helpful to them in procuring the right kind of land.

To be absolutely plain with you, we are out for settling the country. But we are after a class of people that will appreciate our good intentions in their regard. We wish to get such settlers as will take a liking to this part of Texas, and consequently will remain with us, and keep good fellowship with us.

We are offering this booklet to the public, that they may be in no wise deceived, but by following our advice, they may become a contented people and form into thriving communities. We want the settlers, that come, to stay with us. Hence we offer our help. We can assure them that it will be of benefit to them.

Many have come and left in former years, because they had no guiding hand, or if they had, they were careless in following it and hence their ruin.

REV. J. J. STEINES.

UNIVERSAL FARMING

As Practiced By A Scientific Farmer

CHAPTER I.

Preservation of Rainfall and Moisture.

TOO much cannot be said of the importance of conserving the rainfall in all sections of the country where corn and cotton are raised. If we stop to consider that we have a rainfall averaging 30 to 50 inches annually, we will realize that we have sufficient water to raise the average crop, if the rainfall is properly distributed throughout the growing season, or can be conserved so that the moisture will be within reach of the growing crops when needed.

Usually considerable rain falls during the winter. Unless this can be retained in the soil, it is of no benefit to the crops of the succeeding summer when the rainfall is meager.

By my method of preparing the ground in the fall with storage furrows to catch the water and hold it till needed, sufficient moisture can be conserved from the winter rains to make a good crop in the driest summer. We usually, even in the driest summers, get one or more rains. One good rain, under my method of farming, as hereafter explained, is sufficient to mature the crop.

It frequently occurs during the growing season that the farmers cry for rain to save their crops. A good hard rain comes, and then they say that the rain did more harm than good, the ground being wet only a couple of inches deep, the greater part of the rain running off, leaving the field to become a steaming bed, when the hot sun comes out, to wilt and scald the plants. As a matter of fact, if the soil had been prepared according to my method, the rain would all have been caught and stored, and would have been sufficient to insure a bumper crop. When not properly prepared to retain the water the soil is wet for only a slight distance below the surface. Below this is the dry earth. The hot sun, acting upon this combination, causes a hot steam to arise, ruining the crop, not only wilting the plants but penetrating the roots. If the soil is wet deep, as it should be if the proper preparation is made, such results are not seen. This is seen in the case of slow rains, falling for several hours. The slowness with which they fall allows the moisture to penetrate to the sub-moisture, cooling the roots of the plant as well as the portion above the surface and having a beneficial effect. My method of holding a heavy rainfall and allowing it to soak in, makes the sudden heavy shower the same as a slow rain, in its effect upon a growing crop. These sudden showers generally last not longer than thirty to sixty minutes, hence the necessity of having the furrows arranged to take care of the water, and prevent it running off.

On about the 17th day of June, 1911 three to four inches of rain fell in two hours. My fields had been prepared for such a rain. Ten hours after the rain my cotton and tomato patches looked like big lakes, while fourteen hours after the rain there was still water standing in the fields. The next day I examined my field and found that the soil was thoroughly soaked clear to the subsoil. A similar examination made in my neighbor's field adjoining, where no preparation had been made for retaining such a rainfall, showed that the soil had been wet for a depth of not more than two or three inches. The next rain fell July 19th. My field had again been prepared to hold the rainfall with the result that I produced approximately a bale and a half of cotton to the acre. My neighbor produced between 300 and 400 pounds seed cotton per acre on the same kind of land. The topography

UNIVERSAL FARMING

of both farms being approximately the same. These two rainfalls and what moisture I had preserved the previous year, made my heavy yields. It is a well known fact that generally other fields had no submoisture or season in the ground at planting time in the year of 1911.

The principal upon which I work for the preservation of moisture is the preparation of deep furrows in the subsoil, which in the process of putting in the crop are covered with loose earth. These furrows are in consequence made storage reservoirs, holding the moisture against evaporation until the furrows are penetrated by the plant roots. This produces as much good as possible from all rains. The soil will keep the water of a sudden shower from running off,—the dams holding it until it sinks in, clear to the submoisture. These methods as applied to different crops are fully explained in the succeeding chapters. The writer considers this one of his greatest discoveries.

CHAPTER II.

Subsoiling.

SUBSOILING has a three-fold use. First, it supplies a loose bed in which the plant roots can be spread in search of moisture and nourishment, which are stored there by methods described elsewhere in this work. Second, by breaking up the hard ground, it allows the water to penetrate and bring into the loose soil the natural fertility that would otherwise be locked there in such a form as to be of little use in raising a crop. Third, the subsoil furrows which in dry times act as storage reservoirs, in wet seasons act as drains, draw off the surplus water that would otherwise be held by the solid earth to stagnate about the roots of the plants.

Although not so necessary on rich bottom land, subsoiling is of great service on any kind of land, and work spent with a subsoil plow will always be well repaid.

The method of subsoiling the ground should be used in the preparation of the soil for all crops, grain, gardens, orchards and forests, vineyards, alfalfa and in fact all products of the soil.

To more clearly illustrate the effect of subsoiling upon plant growth, it is often noticed, the prolific growth of crops, grass or other vegetation at places where old ditches have been covered up, or where stumps have been removed, or at any place where the soil has been disturbed to any great depth.

The subsoiling should be as deep as possible,—the deeper the better. Don't be afraid of going too deep. The subsoiling is accomplished very successfully with a Georgia stock, using a bull-tongue, or with a potato digger, with the outside prongs removed.

The special method of subsoiling for the different crops are given in the succeeding chapters.

CHAPTER III.

Fertilizing.

THERE is no money spent on a farm which brings greater returns than that spent in fertilizing the land. My favorite artificial fertilizers are cotton seed hulls and meal, with hydrated lime. This combination seems to be about what the soil of our great southern country needs.

Before going further into this subject, I will suggest that if the methods I detail appear too expensive for general use, they be tried first on a single acre. The yield from this acre, in excess of what would have been made without the



PRESERVE THE FERTILITY OF YOUR SOIL.

Do not allow torrential rains to wash away your fertile top soil. Catch the rain and make it subservient to your crops. We will tell you how to do this. Plow your fields deeply in the fall and early winter, manure them well. The rain that will come then will percolate your ground, carrying chemicals and moisture with them.



CIRCLE DITCHES.

To prevent the washing away of the fertile top soil, plow circle ditches and make water furrows, which will retain the moisture for the time of drought and preserve the fertility. This is what our noble Southern farmer did before the war. Thus he over-filled his granaries and smoke houses. If he had known that the family quarrel in 1860 had turned into a war he could have bought the British navy with his wealth. What can you do Mr. Farmer?

UNIVERSAL FARMING

treatment prescribed, will pay for the necessary fertilizer for several acres the next year, and by the third year, the farmer should be so thoroughly convinced of the value of the method that he will consider the purchase of fertilizer in generous quantities not an experiment but an investment.

There are, of course, other valuable fertilizers which go to waste on almost every farm, such as barnyard manure, wood ashes, rotten wood, etc. All such should be saved and applied to the land. Besides enriching the soil it makes it much easier to cultivate and prepare for moisture-storing. When a wood lot is cleared, if the ashes are saved and kept dry until they can be applied to a cultivated field, they will bring sufficient return to pay for the clearing.

Of course the best fertilizer of any kind is barnyard manure, as it contains the necessary phosphates and other chemicals needed to promote plant growth and development, and mature the fruit.

In order that the reader may be fully advised as to the methods employed in fertilizing, the subject will be first taken up in a general way; that is, the methods of applying fertilizers for any kind of crop, will be first outlined, and then the special methods for the different kinds of crops will be taken up separately.

Barnyard manure, when it is available in sufficient quantities, should be spread broadcast before the ground is broken in the fall or early winter, so that it may be thoroughly mixed with the soil in the process of cultivation, and its strength may be distributed by the water percolating through the soil.

Artificial fertilizers are always applied cheapest and with best results in furrows, the plan for the different crops being described in detail later.

Barnyard manure when spread broadcast over the ground, should be applied in the fall or early winter, at least sixty to ninety days before seeding. It should be immediately turned under, before it has time to dry out and lose its strength. The land should be turned to a depth of eight to ten inches, and while the plowing is being done, the subsoiler should be run behind the plow in each furrow.

Where there is a scanty supply of barnyard manure, the ground should be turned in the same manner, and then lister furrows opened up. The manure is then applied in the lister furrows, and then the subsoiler is used in these furrows, thoroughly mixing the fertilizer with the soil. If the subsoiling does not fully cover the manure, it should be run around a bull tongue, small plow or cultivator, and thoroughly covered.

If artificial fertilizers are used, or cotton seed meal, it should be applied in the lister furrows after it has been subsoiled, just before planting time. Here it is covered up by the opening of the plant rows.

In fertilizing it is first necessary to have an analysis made of the soil to ascertain what chemicals are needed. This information can be secured by sending samples of the soil to your nearest experiment station. After it is ascertained what chemical your soil lacks, my method is to use the necessary chemical mixed with cotton seed meal. As much cotton seed meal can be used as desired, the more the better. No matter what the amount of cotton seed meal used, I find it always advisable to use 600 or 800 pounds of phosphate per acre. However, this may vary for the different qualities of soil. The foregoing applies to any and all crops.

My method of applying the fertilizer for cotton is to use about four sacks of meal mixed with the amount of chemicals required per acre. This is distributed with a fertilizing machine in the subsoil furrow hereafter described, three to four inches deep, from fifteen to thirty days before planting time. At planting time, when the lister furrows are opened up to receive the seed, the opening up of these furrows will partly cover up the subsoil furrow containing the fertilizer. The

UNIVERSAL FARMING

fertilizer should remain undisturbed in the lister furrow until after the cotton plant is four to six inches high, or until it has been worked with the harrow or weeder three or four times. Then the fertilizer is thoroughly stirred with a Georgia stock, using a bull tongue six to eight inches wide and about fourteen inches long. This subsoil or fertilizer furrow should be opened or stirred after every cultivation of the cotton, until it is found that the spreader roots have begun to find their way into the subsoil furrow. After this do not disturb it any more.

In case cotton is planted flat upon a bed, the fertilizer or subsoil will be entirely covered up as soon as the cotton is worked or weeded. The same operation of stirring should be applied to cotton planted in this manner as when it is planted in the bottom of the lister furrow as heretofore described.

The plain cotton seed meal is also used with the planter at the time cotton is planted, the usual combination planter and fertilizer machine being used in this work. The writer find it exceptionally desirable to mix with the cotton seed meal an equal part of dry sand. The using of sand not only causes the fertilizer to work better in the planter, causing a more even distribution of the fertilizer, but in soil containing very little sand, the sand so used in the fertilizer makes a good moisture preserver. About one sack of meal per acre is used in this manner. However, as much meal as desired can be used in the plant rows. I have found it undesirable to use any chemicals or other kind of fertilizer under the plant row of cotton at planting time, except cotton seed meal. Chemical fertilizers of various kinds should be constantly stirred in order that they may be thus distributed through the soil. If such fertilizers are placed under the plant rows it is impossible to properly stir them, and it is often found that a fertilizer when used in this manner has never distributed itself through the soil, but lay there undisturbed and was of no use to the plant, as the roots went on through the fertilizer bed into the unfertilized soil. Only enough meal should be used in the plant row to give the plant a healthy start. After the plant has attained a few weeks' rapid growth, caused by this fertilizer in the plant row, the roots will extend out and enter the subsoil furrow containing the thoroughly mixed fertilizer. It will be readily understood that by applying this method the fertilizer is put where it is reached by the ends of the roots which absorb by far the greatest proportion of the nourishment for the plant, instead of putting it in such a position that the roots pass through the fertilizer into the unfertilized ground beyond. This also applies to other crops.

Where cotton seed meal or any chemical fertilizers are used, they may be applied in subsoil furrows, either before or after crops have been planted, but not to be applied after the roots begin to enter the subsoil furrows. As heretofore described, the fertilizer should be stirred after each cultivating.

It is deemed best, however, to apply the fertilizers before planting time, but it is often the case the farmer is behind with his work, and has not the time to apply fertilizers beforehand. Satisfactory results can be obtained by applying after planting.

If barnyard manure is used as a fertilizer it should be distributed in the lister furrow before subsoiling. The running of the subsoiler through the lister furrow after the manure has been placed in the furrow will thoroughly mix and have a tendency to cover it. By fertilizing in this manner only one-half the usual amount of manure is required. If lime is used it should be placed with the manure in the same furrow and mixed at the time of the subsoiling which thoroughly mixes the manure, lime and earth together. When barnyard manure is used in this manner it should be applied less than thirty days before planting time. This likewise applies to all other crops.

The following is an old German method of making and preserving manure which is found to be extremely useful, as follows:

UNIVERSAL FARMING

Cess pools are dug near the barns, and also ditches leading from the barnyard to the cess pools, so that all liquids from the yards will be drawn into the pools and retained. The cess pools should be cemented to hold water. Dry manure is thrown into the pools, where it is allowed to remain until desired for use. This is done in order to keep the manure so wet it will not heat and burn from dryness.

The writer cannot too highly recommend the use of barnyard manure as a fertilizer, because of the fact that it is not necessary to apply as much phosphate when it is used, as barnyard manure preserved according to the method just described possesses and retains all the elements necessary to promote plant growth. However, it is much better to use 600 or 800 pounds of rock phosphate per acre; the more manure used, the less phosphate required.

A valuable method of fertilizing where land is plentiful, is to sow cow peas, wheat, rye, oats, etc., and turn under just before the crop begins to mature. The writer has increased his production of corn from twenty to sixty bushels per acre by this method.

Use of Phosphates.

If the growth of your cotton stalk is excessive and does not produce a good yield, use from 800 to 1000 pounds of phosphates to the acre. How do I know that it takes 800 to 1000 pounds of phosphates? Because experience has shown me it takes 150 loads of manure, and that amount of manure contains 800 to 1000 pounds of phosphates.

Had I little more rain the past season I would have increased my yield of cotton per acre to double what it was. Instead of raising 2300 pounds I would have raised close to 5000 pounds per acre. I fully believe that the time will come when we will raise four to five bales to the acre, by using my methods of cultivating and fertilizing.

In addition to heat, light, and moisture certain chemical compounds, such as calcium, magnesium, sodium and potassium, are essential to plant growth. These occur in the soil in the form of sulphates, nitrates and other soluble compounds, and are absorbed by plants by means of their root fibres, especially the root hairs.

It is readily seen that continual cultivation of the soil will eliminate these essential elements through solution and drainage. This is especially true in regard to the phosphorous and nitrogen.

It is highly essential, then, that this loss be made good through the use of fertilizers. Barnyard manures are especially rich in nitrogen and phosphorous, which gives them great value as fertilizers.

Cotton seed meal contains a high per cent of nitrogen, and should be used freely on land that has been cultivated for several years.

Cotton, corn, or any other plant may have a prolific growth, and look healthy, but not produce a good crop of fruit. In such cases the soil is badly in need of one or more of the above elements.

It is a good plan to always use a little lime as it is valuable in exterminating insects.

CHAPTER IV.

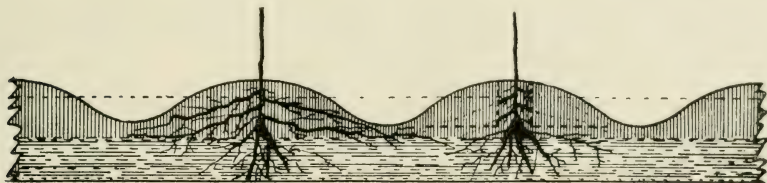
Care of Plant Roots.

IT IS often noticed by cotton growers that although the cotton plant appears to be flourishing and fruiting well, the early fruit falls off, bushels of them being scattered over the ground, and the cotton is late maturing. This is the result of too deep cultivation. The feeder roots are cut off by the deep cultivating, as fast as they are formed. Consequently, the young fruit has no means of sus-

UNIVERSAL FARMING

tenance, and dies. After the cotton is laid by, new feeder roots, however, put out, and new fruit starts, but it is late, and all of the early crop is lost.

The same is true of corn, potatoes, tomatoes and all other kind of crops. It has often been noticed by any farmer, while cultivating potatoes, sweet or Irish, that



This illustration shows how deep cultivation cuts off the feeder roots making the crop of cotton short and late. The figure to the left shows how proper cultivation preserves the roots.

when he reaches the end of a row he has to stop to take the roots off his plow. Now, these roots are the very life of the plant. After they are cut off by deep cultivation, if the season is too dry for new roots to start, the crop is largely or entirely lost. But even if new roots do put out, the crop is either late, or else has not time to mature at all.

If you want to raise good crops, you must give your plants a chance to get all the nourishment and moisture possible, and this can be done only by preserving the only means the plant has of securing moisture and nourishment--its roots. Cultivate and save the roots, and the roots will save the plant.

The writer always preserves the plant roots by shallow cultivating after the plant is up and growing, by constantly turning the soil to the plant. Deep plowing being done before planting time.

It can be clearly seen the disastrous effect deep cultivation has upon the growing plant. Roots are the only method the plant has to extract its nourishment from the soil. Therefore it is very plain to be seen that if the roots are destroyed, as shown in figure No. 4, the plant will be greatly retarded in its effort to grow and produce a good crop of fruit. The proper way to cultivate is to carefully guard these roots and continually throw dirt to the plant row; instead of the roots being destroyed they will be protected, and the entire plant will have a network of small feeder roots running through the soil for several feet around the plant, enabling it to extract any moisture and nourishment which may be in the soil.

By referring back to the preceding chapter, it is noticed the essential chemical compounds necessary to promote plant growth and production. These compounds are not all deposited down deep in the earth, but are mixed thoroughly throughout the cultivated soil. The tap root extending deep into the subsoil, do not provide the plant with the above chemical compounds. They will, however, provide some moisture, and in most cases will produce a stalk or plant, but will not attract and provide enough of the chemicals to give the necessary vitality to the plant. The roots which attract and take up the chemicals and fertilizer necessary to produce vitality, are the small net-work of fibers and spreader roots, which branch out and run in all directions near the surface. These are the roots which are destroyed by deep cultivation. The small root, which is generally disregarded, is of vital importance and should be preserved and cultivated and not destroyed.

UNIVERSAL FARMING

CHAPTER V.—Sec. I.

Preparation of Soil.

COTTON.

THE secret of my success in raising all kinds of crops lies in the preparation of the soil before seeding, more than in the cultivation of the growing crops. The soil should be cultivated just as thoroughly and with as close attention to detail before planting time as possible.

As cotton is perhaps the most important crop in the consideration of the readers of this book, I will take up first the raising of cotton as typical of my methods, diagrams are used.

First,, in the late or early winter, as soon as the ground is cleared, it should be broken to a depth of six to eight inches. It is left lying in this state until spring. After each hard, beating rain, the ground should be harrowed or disked two or three inches deep, to produce a mulch. If not enough rain falls to settle and pack the soil at all, it should be harrowed and then rolled. The purpose of packing the soil is to preserve all of the moisture underlying the mulch.

Thirty days before planting time, furrows should be opened with a 14-inch lister. These furrows should be four to five feet apart, according to the fertility of the soil. It will be noted that this furrow takes out all of the worked soil to the bottom of the first plowing, or about eight inches. These furrows are opened for two purposes, to allow deeper subsoiling and to provide a place for putting the fertilizers.

The subsoiling should be done, running a Georgia stock (or a potato digger with the prongs removed) through the furrows made with the lister. The subsoiling should be carried as deep as possible, in order to preserve all of the moisture derived from any rains. In case fertilizers are used, they should be placed on top of the subsoil furrow about thirty days before planting time. Manure, if used, should be put in the furrow before subsoiling. Thus the subsoil furrow is made a rich moist bed which attracts the roots of the cotton plants, forming a trough from which they may be fed.

Just before planting time rows should be opened with a 14-inch lister. These rows are opened half way between the subsoil furrow, and should not be opened until ready to plant. The soil is thrown out of these furrows into the subsoil furrows, effectually sealing the moisture and fertilizers in these furrows, where it is found by the spreading roots of the cotton plant. The loose soil above these furrows prevents evaporation of the moisture. In dry seasons, the cotton seed should be planted at the bottom of these new furrows, on the hard ground. After the ground has been turned in fall or winter if hard beating rains should fall and the ground becomes packed, care should be taken when opening plant rows to not allow the lister to throw all loose soil from the furrow. Enough loose soil should remain in bottom of furrow to cover seed, care being exercised to see that the seed is planted on hard ground in bottom row. The method for wet seasons is given elsewhere.

After the plants have begun to grow, the dirt should be filled in around them with a weeder or harrow. This operation should be repeated until the ground is again level. After this, start to work with the cultivator, but at no time cutting deeper than 1 to 2 inches, throwing the dirt gradually to the plant.

Shallow cultivation is essential, as it prevents the falling off of the fruit and promotes early maturing of cotton. It preserves the feeder roots, shown illustration No. 4, (which depicts the cotton as laid by) which are the roots which give the



This picture shows cotton roots entering the subsoil furrow. The stalk at the right was not grown in the spot shown, but had been pulled up and placed there to show the length of the roots. The long root shown was over 7 feet in length. The other stalk was grown in the exact position shown. The picture also shows the heavy yield of cotton.

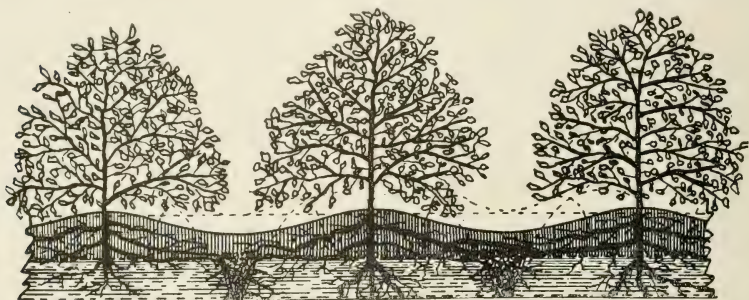


This picture shows another view of cotton roots running along near the surface and entering subsoil furrow.

UNIVERSAL FARMING

growth to the fruit. Under the old method of cultivating, cutting down a considerable depth, these feeder roots are cut off, while under my method, they are left intact, as shown in figure No. 4.

Where on-half bale of cotton has been produced per acre, under favorable conditions and seasons, the same amount or more can be produced on the same land under unfavorable conditions, without the use of fertilizers, provided the same



This illustration shows cotton after laying by. It shows also the formation of the roots near the surface of the ground, running down into the subsoil furrows.

method of subsoiling, moisture preservation, care of plant roots and cultivation is carried out as set forth in this book. This also applies to all other products.

We desire to impress upon the reader the importance of planting cotton seed on the hard soil in the bottom of the furrow, assuming, of course, that the cotton is to be planted in furrows, instead of flat or beds. It is noticed that when cotton is planted it often fails to make a stand. This is especially true where the soil is dry and there has not been enough rainfall to put a season in the ground, in the winter and early spring. The lint around the cotton seed acts as an insulator, and it takes plenty of moisture to break through this insulation and germinate the seed, causing it to sprout. The hard unworked soil lying underneath the worked ground is always moist, provided, of course, there is any moisture in the earth at all, and by planting the seed on top of this ground, and covering two or three inches deep, the seed will attract and draw enough moisture from the hard ground underneath, to germinate the seed, and will always produce a good stand, providing the seed is good.

As an example to show what the above method will do, the writer planted cotton on the 7th day of June, 1911, on ground where a potato crop had been raised and gathered the same year. The ground was hot, dry and loose, and contained no moisture whatever as deep as it had been worked. After the potatoes were dug, furrows were opened and cotton seed planted on top of the hard unworked ground in the bottom of the furrows. The ground was so dry and loose that it was very hard to open the furrows, as the loose, dry soil would slide back into the furrow, filling it up again behind the plow. The seed was covered two or three inches deep. Neighbors and friends laughed and ridiculed, saying nothing would come up in such ground, but they were entirely mistaken, for in seven days this cotton was up and thriving, and produced a double stand, which was later thinned out. Three days later a good rain fell, washing the loose soil over and completely covering the cotton four to six inches deep. The plant rows and field had been prepared to retain any rain fall. A few days later a small "V" shaped harrow was run over the rows and the cotton was uncovered. On the 19th of July another rain fell. This field produced 1200 pounds of cotton per acre, and if the frost had not killed the plant, it would have produced at least one bale per acre.



This Picture shows a party of business men inspecting Mr. Kasmeyer's fields, and also studying his methods of farming. These men unanimously approve of his system. This picture was taken before the second picking.



The above photograph depicts John Kasmeyer, Jr., calling the young boys and girls attention to five bales of cotton, which was raised by his father on three acres of land, during the dry season of 1911. Young Mr. Kasmeyer says, when he grows up to be a man, he is going to raise this many bales upon two acres of land, by using his father's method of plowing, fertilizing and cultivating.

UNIVERSAL FARMING

This cotton was thinned out leaving stalks from 14 to 20 inches apart, and one stalk only in a place. In dry seasons especially, care should be taken to leave only one stalk every fourteen to twenty inches on land without fertilizers. On highly fertilized land stalks should be spaced two to three feet apart depending upon the fertility of the soil. This gives the one stalk the chance to secure all of the moisture and nourishment in the ground around the plant, which will be enough to sustain the plant and mature all the fruit on the stalk. Whereas if two stalks had been allowed to grow where only one should have been, the moisture and plant nourishment existing in the ground would have been divided between the two stalks, with the result that neither would have received enough nourishment to properly make mature its fruit. Better to have one stalk with a few good large bolls than to have two stalks producing nothing.

Two Bales per Acre.

If we want eggs for Christmas, we set our incubators in January, February or March. Chickens hatched then will lay in October, November and December.

So, if you want to raise two bales of cotton to the acre, you must get an early start. Try this method.

First, fertilize and furrow five feet apart, 30 to 60 days before planting time. Use two thousand pounds of cotton seed hulls, three hundred pounds hydrated lime, to the acre. Put your hulls in the lister furrows first, then mix the lime with 200 pounds of fine dry sand and 300 pounds of wood ashes. Mix it all thoroughly. It must be perfectly dry when mixed, so that the fertilizer distributor will distribute it evenly. This mixture should be distributed in the lister furrow, where the hulls have been previously placed. Then take a heavy Georgia stock with a bull tongue from three to four inches wide, and from twelve to fourteen inches long and go through the lister furrow which contains the hulls, lime and ashes, as deep as the team can pull it. Then with a walking or riding cultivator or Georgia stock, thoroughly cover the fertilizer. Wait until you get a good rain, then with your Georgia stock and bull tongue, go through the fertilizer furrow again, and cover again in the same manner as the first time. Then a week before planting time, about May 1st for the district between the 33rd and 37th parallels, take four hundred pounds of cotton seed meal, 800 to 1000 pounds ground rock phosphate and about 400 pounds of dry sand, mix thoroughly, again open the furrow containing the hulls, lime, sand and ashes, and distribute the cotton seed meal phosphate and sand with the fertilizer distributor in this same furrow, and cover up as before.

This method will make you, on land where you formerly raised about a hundred pounds of seed cotton to the acre, a bale to a bale and a half to the acre; and on land that formerly brought you half a bale to a bale to the acre, two bales to the acre and upwards. Your furrows must be five feet apart, on land that formerly produced a hundred pounds; and on land that produced more than that, three feet apart. The stalks ought to stand in the rows fourteen inches to eighteen inches apart, and one stalk only remember, only one stalk in a place. In the cotton planted with the rows five feet apart, there should be one stalk,—just one stalk and no more, every two feet.

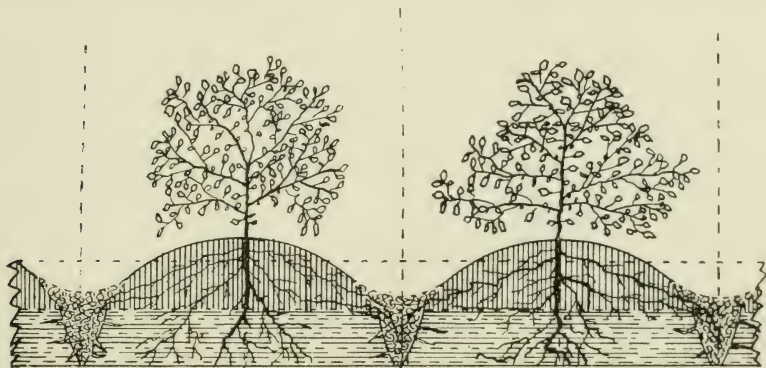
I cannot impress upon the intelligent citizens, farmers and truckers too strongly to save every bit of manure and wood ashes they possibly can. Wood ashes are safest kept in galvanized or other metal containers, and should be kept carefully covered, as ashes for fertilizer should be kept perfectly dry. Whenever you clear an acre of ground and burn up the brush and logs, take the ashes home while they are dry. With that amount of ashes, hulls, lime and meal applied as above to a worn-out acre of ground, you will have two acres instead of one, in amount of product. The only difference of cotton or whatever you plant on the ground being that the worn-out acre will have the best product. So save your ashes and save them while they are dry. Also save rotten logs and decayed leaves. By using

UNIVERSAL FARMING

such things you will not have to use so much of the hulls. If we all used these methods throughout our great American cotton belt, instead of planting close to forty million acres and getting only from ten to fourteen million bales, half of which is only shoddy cotton for which we get shoddy prices, we would raise from fifteen to twenty million bales of the finest staple on twelve to fifteen million acres of land, and could put the remaining twenty to twenty-five million acres in corn, a few potatoes, sweet potatoes, wheat and feed with which to fatten our hogs, cattle and sheep. If we farmers will do that, we will have our billion dollar cotton crop as money in the bank, and you bet we can live at home and when you young men and women marry you need not start a poor house. And when you young farmers unite, what a mighty giant you will be! All business will be based upon you and you will then be monarchs indeed.

Preparing Wet Land for Cotton.

The method of preparing low or wet land for the raising of cotton. The ground is first turned, then beds or rows thrown up six to eight feet apart. A subsoiler is run through the middle of the furrow between the rows. These



This illustration shows the method of preparing beds in low, wet lands for planting cotton. These beds are also used on other lands in exceptionally wet seasons. This cut shows the subsoil furrow between rows, which contains the fertilizers.

furrows not only provide a moisture preserver and fertilizer bed for dry periods, but in case of too much rain they act as drain ditches to carry away surplus water. Planting should be done on top of these beds. In the case of wet bottom land these beds need not be destroyed, but can be used from year to year for cotton, planting on top of the beds and cultivating as usual, and keeping the subsoil furrows open. This form of beds should be used on high land as well as low land in wet, rainy seasons.

Sec. 2.

CORN.

In the cultivation of corn, it is very important that the land be carefully prepared, as corn will not stand hot winds of the south as well as cotton. The writer has secured satisfactory results in raising corn even in dry years when others have failed, by carefully preparing and working the ground before planting in accordance with the following two methods:

First, where subsoil furrows are used not only between rows but in the plant rows.

Under this method we will consider the raising of corn with and without fertilizers, as follows:



This gives you an idea what fertilizer will do. After four years labor and fertilization Mr. Kasmeier raised 41 tons of cane on one acre of land besides one and one-half tons of fodder. Still how indifferent we are with our fertilizer. We burn it up to get rid of it.



(a) For corn break your land deep and fertilize it well. Before planting use a harrow or a disk. Then lay off your field three feet apart, plant two feet in the drill and one stock to the hill. The first ploughing should be as deep as possible, the remaining shallower. Stocks of corn in photo are 14 inches high, the roots 38 inches high.



(b) The same crop of corn after maturing

UNIVERSAL FARMING

The method of subsoiling and fertilizing where a sufficient amount of manure cannot be obtained to spread broadcast but where manure or chemical fertilizer and cotton seed meal are used is as follows: The ground is turned in the same manner and at the same time as above described, eliminating the use of the subsoiler at the time of the turning. After the ground is turned, lister furrows should be opened as for cotton. If manure is used, it should be spread in this furrow, after which the subsoiler is used. This mixes and turns under the manure. If chemicals and cotton seed meal are used it should be applied in furrows after subsoiling is done or about planting time. When the planting furrow is opened up with the lister, the subsoil furrow containing the fertilizer will be partially or wholly covered up. Before planting, a subsoil furrow is run in the bottom of the plant row. This shows the subsoil furrow under the plant row and also between rows. The use of subsoil furrow in the planting row gives a loose seed bed. It is a good plan to apply cotton seed meal in the planting row after subsoiling.

Where no manure or fertilizers are used the ground should be broken and prepared in the same manner as above, using the same method of subsoiling both in the plant rows and between the rows.

Too much cannot be said regarding the subsoil method, as subsoil furrows are exceedingly valuable not only to retain the moisture but to retain the substance of the fertilizers which is carried down by the percolation of water through the loose, well worked soil. These furrows are especially valuable where the land is rolling and such fertilizing material is liable to be carried out of the soil by water percolation at the time of heavy rains.

Second, where corn is planted flat. Under this method we also consider the raising of corn with or without fertilizers as follows:

Where manure is spread broadcast over the ground, and turned under as more fully described under "Fertilizing," it can be further stated that the subsoiling should be done at the time the ground is turned. At planting time the usual lister furrow between the plant rows is opened up and subsoiled. If artificial fertilizers are to be used they should be used in this furrow as more fully described elsewhere. Before corn is planted, the rows should be laid off with a subsoiler, subsoiling about 14 inches deep. The operation leaves the ground practically flat, after which the corn is planted four to five inches deep on this subsoil furrow. If cotton seed meal is used in this furrow, it is used with the planter, using the usual attachments.

In raising corn without fertilizers, the usual subsoil furrows are run in the bottom of lister furrows between rows, thirty to sixty days before planting time. At planting time the plant row is also laid off with the subsoiler in the same manner as described above. This subsoiling is done to provide moist beds to receive the corn roots.

In cultivating the usual harrow is used before the corn comes up, after which cultivation is carried on in the usual methods from three to four inches deep while the corn is still young, continually throwing the dirt to the corn. The cultivation of the corn by this method will cover up the lister furrow between rows containing the moisture. After the corn is four to six inches high, deep cultivation should be discontinued, and the corn should be cultivated to a depth of only one to two inches. The subsoil furrow should be kept open until it is found that the roots of the corn have begun to enter into it, after which it should not be disturbed.

Sec. 3

IRISH POTATOES.

In preparing land for Irish potatoes, if manure is to be used broadcast, the land should be prepared and fertilized as described elsewhere. The land should be

turned from ten to twelve inches deep and the same method of running the subsoiler behind the turning plow should be used. If the farmer has not the facilities to work his land in this manner, the writer finds it advisable and agreeable to co-operate with his neighbor, one to do the plowing, the other following close behind with the subsoiler. This work should be done as early as possible or at least sixty to ninety days before planting. If the ground is prepared in this way, as stated before, the subsoiler is not used at the time the land is turned. In the case manure is distributed in the subsoil furrow and it is not entirely covered by the subsoiler, a bull tongue should be run around the furrow and manure fully covered. This is especially necessary if chemicals are used. When potato planting time arrives, the furrow containing the manure or fertilizer should be thoroughly stirred by opening up with a shovel plow or sweep. This also provides a furrow to receive the seed potato. After the potatoes are planted 18 to 20 inches apart, the seed should be covered 5 to 6 inches deep by running around with a bull tongue or small plow. After the potato has sprouted and all danger of frost is past, a light harrow should be run over the top of the row to take about two inches of soil off the top of the plant. Harrowing between rows should be done to keep down weed growth. During cultivation, the soil should be constantly added to the plant by running around the row with a bull tongue. Care should be taken not to disturb or tear up the plant bed. This operation will, after the plant has reached a good growth, result in forming a bed with a furrow between rows. In case of dry weather and when going through the furrow the last time, or at any time, if conditions become dry and rain is needed, the sweep should be lifted up every five to ten feet, thereby making a small dam across the furrow which will catch and retain any rain which may fall.

Before gathering time the furrows between the rows in which dams have been constructed, should be opened, if rain has been plentiful and the ground is wet, so that the potato beds may dry out as thoroughly as possible, before the crop is gathered.

Sec. 4.

ALFALFA, WHEAT AND OATS.

In the raising of alfalfa, wheat, oats, etc., a great increase in stand and production can be obtained by carefully preparing the soil, using the same methods employed in preparing soil for cotton, except that every furrow should be subsoiled. Before the seed is planted the land should be turned deep and each furrow subsoiled as deep as possible. This plan provides a vast field of moisture preservers consisting of subsoil furrows which receive the roots and promote growth, which in the case of alfalfa is very essential, the success of the crop depending upon a good stand the first year.

Sec. 5.

TOMATO AND SWEET POTATOES.

In the cultivation and raising of tomatoes and sweet potatoes the writer finds great results by preparing the ground in the same manner as for Irish potatoes and if manure or fertilizer is used this is also applied in the same manner. When planting time arrives the fertilizer or subsoil furrows are opened up in the same manner as for Irish potatoes, after which the fertilized soil is turned back into the same furrow. This is done merely to stir and mix the fertilizer with the soil and forms a rich mellow bed for the plants.

In the planting of tomatoes the subsoil furrow is opened and turned back again as described above. This forms a small rich bed to receive the tomato plants. The same method of constantly turning the soil to the plant is used, forming the same



Picture showing potatoes and cotton; the rows of potatoes are six feet apart. The land for these potatoes was prepared in January. It was listed and fertilized, and subsoiled eighteen inches deep. Potatoes were planted "in dark of moon" in February. They were dug the last part of June and yielded 120 bushels per acre, six feet apart.



After the harrowing, potatoes as shown in this picture, leaving the cotton six feet apart and the ground in fine shape, no furrow, no vines, no weed. In a good season the branches of the cotton will interlock across, this stretch of six feet. If you don't believe it, try the system.

UNIVERSAL FARMING

furrows between rows. Small dams should also be constructed between rows as more fully described in other articles, to retain the rainfall. The advantage of these small dams and the subsoil furrow between the plant rows can be readily seen. The water retained by the dams will filter through into the subsoil furrow, which forms a vast bed of moist rich soil for the reception of the plant roots. One or two rains will be sufficient to make a good crop provided care has been exercised to follow the above method.

During the season of 1911, which is known to have been an exceptionally dry year, the writer obtained excellent results in the raising of tomatoes and sweet potatoes, by this method where all others failed.

How to Dig and Care for Sweet Potatoes.

Great care should be used in digging and storing sweet potatoes to prevent bruising and freezing. The writer finds it a good plan to never dig potatoes while the ground is wet and if dug while the ground is wet or damp, the potatoes should be allowed to remain in the field until they are thoroughly dried, before placing in cellar or ricks in field. If potatoes are stored while wet, the wet soil adhering to the potato will cause black spots to form which later develop into dry rot.

Sweet potatoes if stored in cellars should be piled upon shelves made of slats to allow for circulation of air, the shelves to be placed in vertical rows about one foot apart. Another good plan, to keep potatoes in cellars, is to pack them in dry sand in layers one foot thick.

In storing in ricks in fields, a successful method is to first make a flooring of logs or long fence posts. Then lay crosswise on top of this a flooring of corn stalks. This forms a flooring which permits air circulation. The potatoes are then placed on the floor in shape of a mound, covering them first with corn stalks, after which the rick is covered with enough earth to prevent freezing. An opening should be left on top of rick to provide for air circulation. The ends of the logs in floor should be left uncovered to allow the air to enter under the floor and pass through the potatoes and out at the top. In case of extremely cold weather cover ends of logs and also top to keep out cold freezing air. The potatoes will go through a process of sweating when first racked. The bottom vents should remain open until the potatoes stop sweating after which the bottom vents can be permanently closed.

In transporting potatoes from field, wicker baskets should be used, instead of wire baskets as the latter bruises the potatoes. The handling of potatoes in sacks also injures and bruises the potato.

It is very important that the potatoes be harvested before the vines are touched by the frost, as a very light frost on the vines before the potatoes are harvested will cause them to rot soon after being stored. In case that the frost should touch the vines before the potatoes are dug, the vines should be immediately cut off or pulled up before the effect of the frost injures the potatoes.

See 6.

ORCHARDS AND FORESTRY.

The system of subsoiling as described elsewhere in this book may be and is extremely valuable for orchards and also for planting forests. In orchards the rows of trees should be planted flat or above the subsoil furrow. The subsoil furrows from one and one-half to two and one-half feet deep or as deep and wide as possible should be made under the row before the trees are set out, and also between rows. The orchards should be kept clean by cultivating and the subsoil furrow between rows should be opened or re-subsoiled every year in the fall. As

UNIVERSAL FARMING

it is usually the custom to place orchards on hill-sides, it is deemed advisable to lay off rows around the hill so the drainage will not be too heavy, but should be so located that the orchard will drain in case of excessive rainfall. The roots of the trees will run along the ground to the subsoil furrow where in case of exceptionally dry weather, a sufficient amount of moisture will be found. A good plan is to place in these subsoil furrows dead leaves, rotten wood, corn stalks or anything which will have a tendency to enrich the soil and hold the moisture. This forms a fertilized bed from which the trees receive a great amount of nourishment.

Those desiring to put in forests will find the same theory of subsoiling useful as it would insure the preservation of a great amount of moisture, especially with the assistance of small dams constructed across the furrows. The roots of trees will eventually hunt low moist places, the moisture being more useful at the ends of the roots than near the body of the tree. This suggestion is especially valuable for railroads and others who are more vitally interested in forestry. Where forests are put out or planted on a large scale, a traction engine should be used in plowing and subsoiling, the subsoil furrows being carried down as deep as possible.

You have often, perhaps, wondered why it is that large forests do not grow in parts of Oklahoma and Texas, and on the great plains and why it is difficult to grow orchards. The soil is just as rich as where trees of all kinds flourish, and the weather is even more favorable. A long study of the question has convinced me that these are the reasons: First, there is not sufficient moisture to make the trees flourish; second, the rain that does fall is not properly conserved, running off before it has time to penetrate, on accounts of the winds keeping the ground clear of leaves that would otherwise preserve the moisture.

Such trees as do get a start, such as our trees in central and western Oklahoma, have roots going straight down to the submoisture. These roots are barely sufficient to keep the tree alive and give it a meagre growth, but the feeder roots, that make a tree flourish and grow large, are almost entirely lacking, on account of the absence of moisture in the soil where the feeder roots would naturally grow.

I am convinced that if forests were treated in the same manner as orchards according to the methods I have described above, we could raise just as good forests on the uplands of the territory between the 20th and 25th meridians as in the river bottoms of this district or in any other state.

If our prairie countries were planted in forests and cultivated by methods discussed in this book, practically the entire rainfall would be retained, preventing the great overflows of our rivers and streams, thereby saving immense tracts of land from overflow.

What Forestry Has Done.

"Many people in this country think that forestry had never been tried until the Government began to practice it upon the National Forests. Yet forestry is practiced by every civilized country in the world, except China and Turkey. It gets results which can be obtained in no other way, and which are necessary to the general welfare. Forestry is not a new thing. It was discussed two thousand years ago, and it has been studied and applied with increasing thoroughness ever since. The principles of forestry are everywhere the same. They rest on natural laws, which are at work everywhere and all the time. It is simply a question of how best to apply these laws to fit local needs and conditions. No matter how widely countries may differ in size, climate, population, industry, or government, provided only they have forests, all of them must come to forestry some time as a matter of necessity."



A grove of young trees in the Author's front yard, Beeville, Texas

UNIVERSAL FARMING

"The more advanced and progressive countries arrive first and go farthest in forestry, as they do in other thing. Indeed, we might almost take forestry as a yardstick with which to measure the height of civilization. On the one hand, the nations which follow forestry most widely and systematically would be found to be the most enlightened nations. On the other hand, when we applied our yardstick to such countries as are without forestry, we could say with a good deal of assurance, by this test alone, 'Here is a backward nation.'"

"The countries of Europe and Asia, taken together, have passed through all the stages of forest history and applied all the known principles of forestry. They are rich in forest experience. The lessons of forestry were brought home to them by hard knocks. Their forest systems were built up gradually as the result of hardship. They did not at first spin fine theories and then apply those theories by main force. On the contrary, they began by facing disagreeable facts. Every step of the way toward wist forest use, the world over, has been made at the sharp spur of want, suffering, or loss. As a result, the science of forestry is one of the most practical and most directly useful of all sciences. It is a serious work, undertaken as a measure of relief, and continued as a safeguard against future calamity."

Sec. 7.

CULTIVATION OF HIGHLY MANURED SOIL.

By following my method of farming, immense crops may be raised on highly manured land. I raised a heavy crop of cotton on a portion of a cattle pen worked for the first time, upon which others, including an expert farmer, had made a failure under their method, although under much more favorable conditions. This land, though covered with manure 4 to 6 inches deep, produced under my theory of farming over one bale of cotton to the acre, this being the first time the soil was cultivated. Some of the most expert farmers of the state attempted to demonstrate cotton raising on highly manured land, but only produced two bales off of four and one-half acres. This four and one-half acres had been farmed four years prior to this season, but had been used as a feeding pen in the past. My experience with this crop disproved the theory that too much manure is detrimental. It may, however, be injurious to crops to use too much manure if the land is not properly cultivated.

Sec. 8.

PREPARING VEGETABLE BEDS.

Land for the raising of all kinds of vegetables should be well fertilized with manure, if same is obtainable, and carefully prepared, by deep plowing in the winter, the same as for other crops, using a little lime at the time of turning land. About 2 or 3 weeks before planting time, or long enough time to allow the ditches, reaching the plant from beneath, and thereby preventing wilting even in the hottest weather.

All small vegetables, such as radishes, lettuce, turnips, onions, etc., should be planted on these beds in rows, six to eight inches apart. This is done to allow the surface of the bed to be worked very shallow and kept loose, allowing the moisture contained in the bed to be drawn near the surface, where it is ~~reached~~ by the roots. In hot climates water should always be applied on the roots, and never on the plants. The planting in rows allows space for applying commercial fertilizers and cotton seed meal. About 20 pounds of cotton seed meal and 10 pounds of potash should be used in a row, say 100 feet long. This fertilizer should be applied between every row, three to four inches deep, and covered. The use of cotton seed meal



A CABBAGE PATCH IN FEBRUARY IN SOUTHWEST TEXAS.



Garden scene near Beeville, Texas, on the S. P. and S. A. & A. P., connecting links with the other States in the Gulf Coast district, the winter hot house of the United States. This was taken in January, 1915. The cabbage is as solid as a rock, the average weight is 10 pounds, the specimens shown weigh 18 to 20 pounds. What do you think of the chubby children?

UNIVERSAL FARMING

provides a good supply of nitrogen, which gives health and vitality to the plants. The fertilizer used in this manner should be stirred and worked often, care being used not to disturb roots of plants.

Cabbage should be planted, cultivated and fertilized in the same manner as tomatoes and sweet potatoes, that is, by fertilizing early in lister furrows that have been subsoiled, and opened up and stirred at planting time, which makes the plant row in the same row containing the fertilizer.

Peas, beans, etc., should be planted in rows two feet apart, the land for same having previously been prepared in the same manner as for other crops. When ready to plant, a furrow is run, as deep as possible, with a Georgia stock and bull tongue. Cotton seed meal (and hulls if obtainable), and potash are then applied in these furrows and then covered up. The beans, peas, etc., are then planted flat, half way between these rows containing the fertilizer, about the same amount of meal and potash, as above issued.

Too much cannot be said in regard to preparing and fertilizing the land before planting time, and if you expect to get good results in gardening, select only the best of seed, regardless of the price. Money invested in good seed is money well spent. Deal directly with reputable seed house, and always keep a complete record of all seed planted, by so doing you can soon learn the best quality of seed to buy.

CHAPTER VI.

A Word of Advice to Farmers.

Kind reader, I would request your kind attention, and a close study of every word in this little book, which deals with systematic and scientific gardening and farming, and also the care of orchards, vineyards, forests and small fruits of all kinds.

Before going further I would like to call your attention to the method of farming, soil and water preservation of the noble southern farmer of sixty years ago, who was in those days commonly called by the plantation negroes "Old Massa." When this good old Massa settled upon a tract of virgin land in the beautiful south and cleared from the land the mighty forest, he planned and developed a system for preserving every furrow of the precious soil. He constructed circular ditches and water furrows to take care of the heavy rains in such a manner as would preserve the soil. When the tourist in these days visited the Sunny South, he noticed the wonderful progress of our great cotton belt. Where before had stood the forests covering the hills and the valleys, appeared a scene of prosperity. The conditions then were brought about by the employment of scientific methods of holding and tilling the soil. This "Old Massa" was, in other words, a business farmer with a system, and this kind of farming, just like any other business run on a system, was bound to succeed. The world at large in those days would call the cotton industry a golden treasury. All this was through him, the "Old Massa," being a business farmer.

But what happened since those days? Has your father or yourself, dear reader, practiced this "Old Massa's" methods or followed in his footsteps? Have you made the same success at farming? We must bow our heads in sorrow,—we have not! Look at the hills that at one time towered, monuments to prosperity! Look at them now, robbed of their crown of prosperity, devastated by haphazard farming methods, done by rooters rather than farmers.

Now, kind reader, it matters not in what walk of life you may be, whether a railroad president, an oil king, a banker, merchant or farmer, we should get together. Let us practice and continue to improve our farming along scientific methods instead of pursuing our course of murdering soil. We shape our own destiny.

UNIVERSAL FARMING

Our future progress and prosperity depend upon co-operation and improved methods of cultivating the soil.

Dear brother farmer, we do not appreciate and have been slow to accept the assistance that has been offered by our government and business organizations. Look at our experiment stations that have been established throughout the entire country and the demonstration trains run by the railroads. Are these for the benefit of railroads and business men alone? No, they are for the farmer also. They try to improve and help him in his work, but the farmer is slow to accept. These stations are backed by the railroads and the business people, and not by the farmers. The experts at these stations frankly admit that they do not know all about farming,—but neither do we. We can, by co-operating with these stations and using improved methods, greatly increase our production upon land that we have in the past pronounced worthless.

You may look about you and you will see farmers selling their blooded stock. Why? Because they just naturally have not made enough feed to keep them and they themselves seek a country where it rains regularly, and are again disappointed. The result is you hear the familiar cry, "High cost of living." Therefore, let our seven million farmers and gardeners get together and co-operate with our business men such as I have mentioned above, and I am confident that we will reduce the high cost of living. It will then be a pleasure to farm and market our products. System is what we most need. Without system none of our railroads, factories or governments could have succeeded. If system succeeds with a large concern, then it will succeed with the farmer. The union Pacific railroad employs 25,000 men. Suppose the president of this road should throw the reins with which he controls the system, into the hands of his 25,000 employees to manage. Do you believe that the trains would be run on time? We are compelled to admit there would soon be no railroad. So it is with our vast army of farmers who have no system and no living, and blame our railroads and banks and merchants as the cause. On the other hand I am confident that if you farmers without a system would get together and employ improved methods in your farming and systematically market and handle your products, you would then cease to blame the large concerns, and would work together with them,—then what a mighty power you would be!

The farmer, with his up-to-date implements and machinery, has not made the same progress that has marked other lines of business. In fact, his methods will not compare with those of the farmer with the wooden plow of sixty or seventy years ago.

CHAPTER VII.

A FEW USEFUL METHODS.

To Make Fruit a Sure Crop.

TO insure a crop of all kinds of fruit every year, I use a method that I learned from an neighbor in northern Alabama. He had always raised fruit, of good size quality, even when others raised none. His method was this: After a hard freeze in the winter, when the ground had been chilled to a considerable depth, he would haul leaves and scatter deep over the ground for a radius of about five or six feet about the tree and weight them down with brush or chunks of wood. This would keep the frost in the ground, and also the moisture. When the warm days came, even though the ends of the roots would be livened up, the sap would not start, on account of the roots near the tree still being cold and the bloom would be kept back until all danger of frost was over. The result was that when the sap did start and the tree bloomed, the blossoms stayed on, and produced fruit. The moisture preserved in the ground by the leaves helped to develop the fruit



Blossoming Time In Southwest Texas

UNIVERSAL FARMING

and a fine crop always resulted. For the same purpose I have used cotton seed hulls, spoiled hay, straw and other things of the kind. It is a good treatment for apples, peaches, plums or any kind of fruit.

The writer has improved upon the method of his neighbor in northern Alabama. He has not only studied fruit culture in the sand hills, but also in the river bottoms. It will be noticed that wherever the frost is retained in the ground around the roots, the bloom is always late, consequently the fruit is not killed by the frost. Where orchards are located on sides of sand hills, and where the ground has been frozen in the winter, a mulch is formed in the sand one to three inches deep when the ground begins to thaw. This mulch acts as an insulator on the frost below the mulch, and retains it there long enough to hold the sap down, thereby preventing an early bloom. This same theory likewise applies to gumbo districts, that is, when the thaw starts it forms a mulch one to three inches deep on top of the ground and holds the frost the same as on the sandy hillsides. Where orchards are located in sandy loam, this will not be the case, as the ground thaws out much faster, and furthermore never freezes as deep. It is very essential to use the leaves and hay around the trees after a hard freeze to keep the frost in the ground. This should be applied usually in January or February. If hard freezes continue after this has been applied, this insulation should be removed, allowing all the frost possible to enter the ground, after which it should be covered again, and left until the trees bloom.

As to smutty corn for feeding. Never feed whole. In shucking, be very careful to throw out all the worst ears, or don't shuck them at all. Then take this corn, shell it and have it ground into chops. For feeding take three parts of corn chops and one part of cotton seed meal, and moisten same. This will prevent blind staggers.

Another feed the value of which I would like to impress upon the intelligent farmers and truckers is wheat straw. We should all try to sow a few acres of wheat. In the first place, you will save many a dollar on flour, for which you now pay a dollar and a quarter to a dollar and a half for forty or fifty pounds. You can easily raise in Oklahoma and Texas from ten to fifteen bushels of wheat to the acre. By doing so, an acre would net you from fifteen to twenty dollars, and in addition would produce from one to one and one-half tons of feed. On the same land can then be planted June corn, Kaffir corn, or a crop of sweet potatoes can be raised by planting runners from the vines planted early in the spring.

The wheat straw should be carefully stacked so as to keep it from spoiling, and in the fall take your feed cutting machine, which is driven by a small gasoline engine, and chop up and store the straw away in your barn. To feed, mix three parts of corn chops, one part of cotton seed meal, and the straw chops. Add a little salt, if desired, and sprinkle over it enough water at feeding time for each feed, to keep it from being dusty. Feed just enough so there will be none left in the trough. Use good tight troughs, made of wood. By using this feed, you will need no hay. This feed is good for horses, mules, cows, sheep, etc. To fatten steers, use 3 parts cotton seed meal, 1 part corn chops and the straw chops.

Every good farmer should own a gasoline engine. It is a cheap power and the invention of the gasoline engine has made it possible for every farmer to grind his own feed as it should be ground, at a minimum cost. All feed should be ground on the farm.

MY DEAR READER:

You can readily see that it takes moisture and fertility to raise a crop. We see large and flowery advertisements describing the beauties and fertility of the soil. And this is occurring all over the country to induce people to go to the farm. Let anyone who seeks to immigrate to the farm, first investigate the land, see what the climate is, the length of the season, and the productiveness of the soil. If it will produce twenty-five bushels of corn or more, fifteen or twenty bushels of peas or beans per acre, it will be worth twenty-five dollars per acre.

If it will produce fifty to seventy-five bushels of corn *feterita*, or beans per acre it is worth a hundred dollars or more. Always find out what kind of water and how deep to it. Be sure that the water is good for irrigation, then you should bear in mind that you must irrigate to make farming a success. And by the system set forth in this book, by preserving the moisture in the early fall and winter it would only require from fifty to a hundred thousand gallons of water per acre, and make a full crop.

Irish potatoes would yield from two to three hundred bushels per acre. Sweet potatoes from three to five hundred or more bushels per acre. Corn from one hundred to two hundred bushel per acre. Wheat, oats, rye, peas, beans, from twenty-five to seventy-five bushels or more. Mangel-Wurzel from forty to one hundred tons per acre. Sorghum for silage, from twenty to sixty tons per acre. Cotton from one to two bales per acre. Or anything else you plant will make a full crop or perhaps twenty-five times as much as it is made on an average without the water or fertility and fertilizing.

Now we can tell you from the very best authorities that in the semi-arid belt it takes on an average of eighty acres to make a car load. But in following our system i. e. by improving the land through fertilization and irrigation, you can produce a carload from 1-2 acre.

Now we want to give you this information concerning the present system of farming to prevent thousands of people coming into the country and settling under such a condition as will discourage them and ruin them and throw them back into the cities.

Under the system set forth in this book, millions of acres could be turned into prosperous homes. Take pains in plowing the land in the fall or early winter from ten to fourteen inches deep; keep the surface rough by using the cultivator, and at intervals, raise it to create little ditches. Then before planting in the spring it should be plowed again from five to eight inches deep, not disturbing the subsoil. After the first planting the cultivation should be from six to eight inches and deeper, the second, third, fourth, fifth, and more or less should be from three to four inches deep so as not to disturb the roots. This will place your field in a level condition. But the land must be kept clean.

When irrigating allow the water to run in the center between the rows, whether it is corn, cotton or potatoes or whatever it should be. If your land should be sloping you should first go through the center with a large sweep or cultivator, raising up said cultivator at intervals, according to the slope of your land. This will create a little dam. You may then allow your water to run down to the far end. To do this you will have to cut the little dams in the center to allow the water to reach the last dam and when the first to the second is filled then close your second dam and so on till they are all filled and closed.

UNIVERSAL FARMING

The land purchaser should investigate the land that he intends to buy to see what underlies the land. You can easily do this by taking a tiling spade or a post-hole digger. Hardpan or waxy clay will not allow the water to penetrate and nothing can be grown on such land. See whether the soil contains alkali or not. There are two kinds of alkali, solid white and black. This land is of no benefit and is worthless. Also be sure to see that the land has not too many wash-outs as such land is hard to build up.

Our Government is puzzled to know how to reduce the high cost of living and it will be puzzled as long as they work under the old system of farming. J. Hill, the great railroad magnate and Missouri Farmer always ends his speeches by saying, "What are we going to feed those millions with, the growing population." We say under our system, "Don't Worry." All we want is co-operation with the Government in marketing our product direct to the consumer.

Therefore we invite our brothers to co-operate with us in this great work in revolutionizing our farming industry. And by so doing, reduce the cost of high living.

After studying this little book you can raise anything for your home or kitchen, let us can all that is possible and if you have a good receipt tell your neighbor. Here are a few receipts of value in canning and preserving:

Chow Chow receipt: Twelve quarts of tomatoes; six quarts of cucumbers; one dozen sweet peppers; three heads of cabbage; one dozen onions; 1 gallon of vinegar; two boxes of mustard, one tablespoon full of black pepper ground; one-half cup of sugar; let vinegar come to a boil, mix mustard in a little bowl and stir smooth with water and then stir it into boiling vinegar.

Tomatoes: Remove the skins from the tomatoes by boiling a few in clear water. Take one pound of sugar to one pound of fruit, and thin slices of lemon, and let all stand together over night. Pour off the juice and let boil, skimming well, then put in tomatoes and let boil for half an hour. Take out the tomatoes in a dish and let cool. When syrup has thickened put the tomatoes in jars, and pour over them the syrup.

Sausage: Here is a receipt that you may find very useful to make sausage. Eighteen pounds of lean and twelve pounds of fat pork, nine tablespoons of salt and six of pepper and four of sage. Grind in sausage grinder.

If you should desire more good receipts in canning and preserving of fruits and vegetables, get the Capitol Cook Book, published by Von Beeckman Jones, Printers, Austin, Texas.

THE SYSTEM OF FARMING IN A NUTSHELL AND WHAT TO PLANT. . .

First break the land in the early fall or winter. There are six elements essential to successful farming.

First: Preservation of the fertility of the soil, by making circle ditches and water furrows, and ridges high enough to retain the heavy rainfall. These furrows and ditches are located so as to prevent water from washing the soil away.

Second: Preservation of rain fall and moisture.

Third: Fertilizing.

Fourth: Sub-soiling.

Fifth: Care of plant root, by shallow cultivation.

Sixth: Pure seed.

Remarks:

UNIVERSAL FARMING

Legume crops, use nitrogen or hydrated lime, they are soil builders, take care of the fertility of the soil, and the soil will make you prosper and be content.

What to plant. Soy beans, early yellow if grown for seed, plant rows three feet apart, two to three plants to the foot in the drill. Inoculate your beans with nitrogen before planting, also all peas, beans, clover and alfalfa, cultivate beans with weeder before they come up. Several cultivations should be given after they are up.

Field corn. Oklahoma White Wonder, Thomas corn or Boone County Corn, plant corn as early as possible, first cultivation as deep as possible and the other shallow.

Cotton. Rouden Big Bowl, Simpkins Prolific, Russell B. B. Prolific, Hawkins extra Early Prolific. These are Mr. Kameier's favorites and we are sure they will be yours.

Potatoes. The Red Triumph, Early Ohio or Extra- Early Bovee and Irish Cobbler.

All crops should be cultivated as mentioned above. For pasture, sow inoculated hairyvetch, between the corn rows at the last plowing of the corn, it will furnish you with pasture throughout the fall, winter and spring, but where you are building up worn-out land it should not be pastured, but plowed under when sowed in February or March, it can be cut in June for hay, second growth for pasture during summer. Soy beans planted in March, two and one-half feet apart, it takes about four pecks of seed to the acre, cultivate three times after they are up, this will make one of the finest hays on earth. Harvest Soy beans as soon as pods are formed. Soy beans for silage. One row of beans and one of corn, the required amount of seed to the acre is two pecks of corn and two pecks of beans, this also applies Feterita for planting, with the beans and also black hull white Kaffir corn. Red Top Cane and late Mammoth Soy beans also are good for silage.

Here are the greatest producers known for silage under favorable season and irrigation, tonnage per acre, Soy beans and corn, thirty tons, Kaffir corn and beans, twenty-five tons; seed ribbon and mammoth Soy beans, forty tons, Mangel Wurzel, non-silage, one hundred tons and more.

Vegetables for each farmer to plant to furnish his own kitchen; Carpinteria Pole Lima Beans, Earliest Red Speckled Valentine, Hodson Green Pod, Early Burpee's Stringless, Currie's Rust-Proof Wax, Dwarf Prolific, Bush Lima, Keeney's Rustless Golden Wax Beans, Glory of Enkhizen Cabbage, a comparatively new Cabbage from Holland.

The Brimmer Tomato, the Matchless, and the Pondorosa Tomato.

Table Beets. Crosby's Early Egyptian, Early Model. This beet is a perfect globe shape and small tap roots and in flavor it cannot be beat and splendid for pickling purposes.

Carrots. Cgantenay, the best carrot for table use. Be sure and get this carrot. It is also a stock feed.

Cauliflower. King of the Market, or Early Danish Snowball.

Lettuce. California Cream and Butter.

Mushmelon. Defender. Watermelon. The Tom Watson, Alabama Sweet, Rocky Ford, Seminole.

Onions. Southport White Globe, Bermuda.

Parsley. Dwarf Perfection.

UNIVERSAL FARMING

Peas. Alaska, a variety of remarkable earliness

Sweet Potatoes. The Pride of Kansas, The Vineless.

Pumpkins. Tennessee Sweet Potato, a good variety for making pies and for other cooking purposes. And the Common Field or the Big Tom.

Spinach. The True Victoria, and the New Zealand.

Brussels Sprouts, another member of the cabbage family. Copenhagen, a new early cabbage. Also the Early Jersey Wakefield, The Solid South, All Head Early, Sure Head, Late Flat Dutch, and the American Perfection Drumhead Savoy.

Cucumber. Improved Long Green, Green Prolific Pickling.

Peas and beans for the field. Mammoth Yellow Soja. It is not necessary to feed corn, cotton seed meal or any oil food whatever when feeding Soja beans. It is the only crop that furnishes a balance ration in one crop, it's drought resisting, it is impossible for any weed to grow where the Soja bean is growing. The Whip-poorwill, Red Ripper, and Taylot.

The Jerusalem Artichokes are very prolific and the best hog feed that I know of.

Try a peck of Virginia corn. It often grows to a height of sixteen feet. It and Soja beans produce 40 tons per acre.

Mangel Wurzel, Mammoth Prize Long Red, Golden Tankard, and the Silesian Sugar. Also try the Large Yellow Belgian Carrot for stock feeding.

Plant in June or July the white Navy bean. Never cultivate your beans when they are in bloom. Always cultivate beans and peas of all kinds shallow, and never work them while the dew is on them.

If you use tobacco we would recommend the following:

For Cigarettes. Improved Long Leaf Gooch, Granville County Yellow, Improved Hester, and the Hyc and Bradley Broadleaf.

For cigars. Florida Sumatra, Imported Havana, Vuelta de Abajo and the Choice Havana. The above mentioned are good for both cigars and pipe tobacco.

For the tobacco plant bed. Fix same as you would your cabbage plant bed. The plant should be highly fertilized and should be prepared a month before the seeds are planted. Said bed should be covered about four to six inches deep with rough barnyard manure or straw. It should be thoroughly soaked with water if it is dry. Leave it in that condition until seeding time comes, about the first of February, in the light of the moon.

Then rake off the barnyard manure and sow your seed, rake them in about a half inch, then spread over some old sacks weighted down with about an inch or two of rough straw. In about six or eight days examine the bed by raising up the sack which is covered with straw. If you find said bed dry sprinkle water over the top of the straw. Look after them every day or so and if you notice the plants are coming up take off the sack and the straw and only cover them up in case of a hard rain and a frost. All seeds should be soaked in luke-warm water twenty-four hours before planting.

Seed beds for cabbage, tomatoes, cauliflower, and all replanting plants the beds should be prepared in that manner. Preparing your tobacco patch, fertilize said patch heavy with hog manure. Break up said patch about a month before planting, then loosen up said patch about four or five inches deep in a nice smooth condition, then plant. First cultivation should be from four to five inches deep, the other cultivations should be shallow. Always cultivate your tobacco patch and all other crops with a small oval-shap bed around the plant.

Tobacco does well throughout the cotton belt and there is no other fertilizer that will give tobacco the fine Havana flavor as hog manure. This is a study of forty years. Try it. Don't forget to plant all the beans and peas that you can. They are soil builders and money makers. Try the Velvet beans, the famous forage and soil building plant. The only trouble is that there is no plow that will turn twenty-five tons; seed ribbon and mammoth Soy beans, forty tons, Mangel Wutzel.

UNIVERSAL FARMING

under said velvet beans, but by writing me a letter and enclosing \$5.00 I will send you a device whereby you can turn the most rankest growth under, even corn that is ten or fifteen feet high. By making up a club of five members and sending me five dollars I will send you this device.

You should never fail to plant a half acre of the Mammoth Russian Sunflower, which is one of the best egg producers known and it will make you all the bean poles that you want. They should be pointed while they are green and so that they will not get wet.

Try a peck of White Velvet Okra. The pods are perfectly round, smooth and of an attractive white velvet appearance.

Sow close to your corn and cotton patch some buckwheat. It is a great blossom plant and then keep a few bee hives. These bees and buckwheat will help you make a prolific crop, and also a few pounds of honey which should be in every household.

To every hundred tons of silage you should have at least twenty tons of pea hay, and oats hay. When fed it should be chopped up fine. Also four tons of cotton seed meal or corn meal. This will make you one of the finest fattening rations known. Also to every hundred tons of Mangel Wutzel use the above ingredients. Plant beans and peas; they will make you independent. With the feed mixture dampen enough water which is sweetened with molasses and salt to taste. This will prevent blind staggers and many other diseases.

Always keep a package of Bug Death. This preparation is sure death to the potato bug.

The time required for garden seed to germinate. Beans, beets, corn, cucumber, cauliflower, lettuce, onions, peas, radish, tomatoes, and turnips, if the ground is warm, from five to six days. Carrots, celery, parsnips, pepper, from ten to fifteen days. If the ground is cold it will take again as long and ninety per cent of them will decay and won't come up.

Maturing of different garden crops. Beans, peas, and lettuce from forty to sixty days. Beets, cabbage, cauliflower, egg-plant, watermelon, mushmelon, pepper, onions, radish, squash, tomato, and turnips, from forty to one hundred and sixty days.

Number of plants and trees to the acre at given distances:

In rich and highly fertilized soil and for irrigation and where no irrigation is used plant about one-third this amount. This table is for irrigation:

Different plants	Inches in row.	Inches in drill.	No. of plants
Corn	36	12	14,250
Cotton	36	36	4,480
Sweet corn	36	12	14,520
Fetarita	36	3	58,030
Cabbage	36	20	7,500
Cauliflower	36	24	7,290
Carrots	18	4	144,000
Table beet	18	4	144,000
Mangel	30	12	18,000
Turnips	18	12	29,000
Pop corn	36	12	15,000
Sweet potato	36	18	9,680
Watermelon	192	192	170
Concord grapes	120	72	726
Blackberries	60	36	2,900
Burbank plum	192	192	170
Peach and apples	192	192	170

UNIVERSAL FARMING

Corn and soy beans, the early yellow, mature about the same time, for silage.

Here is a standard variety of sweet corn. Adams, Mohawk, Mammoth and Mexican.

Rhubarb and pie plant culture. Sow in drills eighteen inches apart and one inch deep. Thin out the plants to six inches apart. In the fall prepare the permanent bed by trenching two feet deep, mixing a liberal quantity of manure with the soil. Into this set the plants about five feet apart each way. The stalk should not be cut until the second year. One ounce should give about five hundred plants.

Plant more beans, but try the Tepary bean, the most drought resisting bean known.

Inoculation. Formogerm High-bred Nitrogen gather bacteria, discovered in 1886 by Hellriegel, a noted German scientist. This scientist proved nitrogen is taken out of the air.

Do not forget that cooking adds twenty-five to fifty per cent to the value of cookable feeds, such as Mangel and other root crops, especially corn and cotton seed meal. Do not buy worn-out land. If you should buy worn-off land the fertilizer factories will surely reap the benefit of your labor, and you will be a pauper all your life, and it will take four generations to build up this worn-out land. Now kind reader, listen. Land that you have to fertilize at the expense of five dollars per acre, taking four generations at twenty-one years to the generation, this would make sixty-four years, you have then fertilized your acre sixty-four times, which would bring up your land to three hundred and twenty dollars per acre, besides the first payment. Now, what is worn-out land worth?

If you are looking for good land, come and see us at Beeville. We will acquaint you with our expert.

SUPPLEMENT

UNIVERSAL FARMING

THE WHY OF THE SILO.

(From the Kansas Experiment Station.)

Permanent farm prosperity can come only in proportion to the amount of live stock carried on our farms. This is the history of the world's operations. The silo will enable every farmer to carry three times as much live stock as he is now keeping and will relieve him of the uncertainty heretofore existing in feed supply.

The silo is not new and untried. Silage is not an experimental feed. For fifty years silos and silage have been used in the old countries, and for twenty-five years have been regarded as a necessity in those sections of the United States in which it has become necessary to exercise economy in the saving of feed grown, and in the most economical feeding of all kinds of live stock.

The economy of the silo is apparent when it is realized that one ton of cured forage will make three tons of silage, so that on farms where the forage has heretofore been cut and cured the quantity and feeding value has diminished two-thirds in original quantity and value as compared with the same feed placed in the silo. Consequently a field providing cured forage for twenty head of stock will provide, in silage, feed for sixty head.

The important economy, however, in silage lies in its superior feeding value as compared with the cured feed. Silage retains all of the food constituents together with all of the succulence and the palatability of the green crop. Every farmer knows the value of green corn fed to the dairy cow, the fattening steer, the sheep, horse or hog, when pastures are dry and short. This indicates the value of an equal quantity of silage given the animal in mid-winter. Good silage is in feeding value the equal of the green crop.

Silage, in fact, is the equal of June pasture. Isn't it wonderful that by means of the silo it is possible to supply live stock in the winter with the pasture of June? The Indiana experiment station has established the value of silage compared with pasture. In these experiments milch cows and steers were alternately pastured on clover and timothy and blue grass and fed silage in a dry lot. The result, in each instance, showed silage the equal of the pastures named.

Experience of eastern farmers has demonstrated how the silo takes the place of pasture where land is too high-priced for pasture, also in sections where native grasses have been exterminated and where no pasture substitute has been found. The silo is as valuable for summer feeding as for winter feeding.

Summarizing the advantages of the silo and silage, the facts are: The silo saves all the feed by making use of the entire crop; stores economically and safely; provides a succulent feed the equal of the green plant; reduces cost of ration; stimulates the milk flow; produces growth and beef cheaply; and reduces to a minimum the labor of saving feed and feeding.

Crops for Silage.

Numerous crops are available for silage. Any crop makes good forage cured can be more or less successfully siloed. Corn is the king of Silage crops. In sections where other crops outyield corn in grain and forage or are of more certain yield, such can be safely depended upon for filling the silo. In Kansas, Oklahoma, Nebraska and Colorado, Kaffir, cane and milo are the principal silage crops. Experience has proven these the equal of corn, and many farmers are now filling their silos with these in preference to corn. The more certain yield of these drought-resisting crops makes it safe to say that the silo can be filled every year.

UNIVERSAL FARMING

The Kansas experiment station fed dairy cows corn and cane alternately with results establishing the equality of cane to corn silage in the production of milk. On cane silage the herd increased in weight and lost that increase when put back onto corn silage. This would indicate that cane silage has a greater value than corn silage in beef feeding.

Cowpeas and oats either separately or in combination are successful silage crops, although on account of the smaller tonnage than that of other crops named they are not generally grown for silage except as they may be used as catch crops.

Alfalfa is successfully siloed. However, hay cut at the right time and properly cured is so good that it is not considered profitable to place it in the silo, except in case it may have become wet and consequently difficult or impossible to cure, when it may be saved to the best advantage in the silo. The first crop of alfalfa is on many farms saved in the silo when it has been rained on in the windrow or cock. Alfalfa so siloed may be fed during the summer and early fall and gotten out of the silo before the corn, Kaffir or milo is ready.

Siloing Corn Fodder.

In numerous instances the silo has proved its value on farms on which fattening cattle are fed through the cutter as is the green crop, and through the blower of the cutter is run a sufficient quantity of water to thoroughly wet the cutfodder. This, packed in the silo, makes the corn stalks soft and palatable, increases the digestibility, and easily doubles the feeding of the corn fodder. In Kansas, Nebraska, Missouri and Illinois, this has become a common practice. The silos are first filled with the green feed and when emptied are filled with corn fodder as above described.

When to Cut for Silage.

For best results mature crops should be siloed. Cut corn when it is in the dent stage, Kaffir, cane and milo when just past the dough stage. These are ideal conditions under which to silo these crops. However, should the weather be so unfavorable that the crop is rapidly drying up, either of these crops can at this stage be siloed, saving thereby the largest possible tonnage and the fullest possible feed value. It must be realized, however, that no immature crop has reached its fullest feeding value, and for this reason should be allowed to stand until the food constituents exist in the largest quantity, which is just before the hardening of the seed.

The silo appears to great advantage in the economical storing of feed from one year to another. Silage put up this year and not fed is as valuable for feeding next year, or for that matter five years hence, as it was the year of filling. This is an important feature in that in years of plenty crops may be siloed and held for feeding during the lean years. It is in this respect that the silo is an insurance policy on the feed required for the live stock. Live stock farming cannot be successful unless a sure and certain method of feeding accompanies it. The silo furnishes this.

Storage Economy in Silos.

The economical storage of feed is a strong point in favor of the silo. A ton of silage in a silo thirty feet high occupies forty feet. A ton of hay in a mow four hundred cubic feet. A ton of hay, therefore, occupies ten times as much space as an equal quantity of silage. The silo affords the most economical structure in which to store and house feed. The cutting, curing and hauling of hay into the mow costs \$1.50 per ton. To place silage in the silo costs 60 to 75 cents per ton.



TURNIPS IN FEBRUARY IN SOUTHWEST TEXAS.



CARROTS GROWN IN WINTER IN SOUTHWEST TEXAS.

UNIVERSAL FARMING

Principle of the Silo.

The silo is a receptacle for the storing of green feed, the successful storing of which necessitates the exclusion of air by the structure itself and through the settling of the mass. It is for this reason that silos are built air-tight and proportioned so that the height is twice the diameter. The pressure from above is necessary in the air exclusion and as an aid in bringing about the change necessary for the preservation of the silage. The top of the silo is sealed air-tight as a result of the rotting of eight to ten inches of the surface silage between the time of filling and the time of opening at the beginning of the feeding period. The sides of the silo must be smooth and perpendicular, permitting the unobstructed settling of the silage. The preservation of the green crop with all its original succulence and palatability for the live stock is parallel with the canning and the preserving of fruit, and the same essential principles prevail.

Silo Makes Feed Saving Easy.

The daily hauling of feed through wind and mud and the chopping of feed out of snow and ice is the most expensive operation on the farm. The silo does away with all this. The winter's feed is placed in the silo in a few days in the fall of the year while the weather is fine. Instead of mowing, raking and forking the sorghum into cocks in which the feed dries out, leeches and rots from the rain and snow, the feed is placed on the wagon and hauled to the silo. In the silo it is protected from the weather, is handy for feeding, and the acme of convenience and economy is accomplished. With the silo the winter's feed saving is completed at one operation. The silage is fed in bunks or in the barn, and all of it is eaten. One beef man reports feeding 1,500 steers with one team and two men. What other method feeding can result in such economy of labor?

Size Silo to Meet Requirements.

To feed silage in the best possible condition after the silo is opened and feeding has once begun, it is necessary that one and a half to two inches of silage be fed from the entire surface of the silage daily. It is necessary, therefore, that the size of the silo be such as will permit feeding this amount for the feeding period. When the silo is so large that this amount cannot be fed, then there is depreciation in the value of the feed on account of continued exposure of the silage to the air.

A silo thirty feet deep will permit the feeding of 1 1-2 inches in depth per day for 240 days. A silo 24 feet deep will allow the feeding of 1.2 inches per day for the same time. The diameter must therefore conform to the size of the herd if 1 1-2 to 2 inches of silage is to be fed per day. The mean weight of silage per cubic foot for a silo 30 feet deep is 39.6 pounds, and allowing 40 pounds of silage will feed one cow one day. If the silo is 24 feet deep there will be required 1.11 cubic feet of silage to give the desired weight.

The following table shows the ratio between diameter of silo and number of cows to be fed:

Diameter of silo in feet.....	10	12	14	16	18
Number of cows to be fed.....	12	17	23	30	38

The table shows the amount of silage which will be consumed per day for a feeding season of 240 days:

No.	40 Lbs. Per day.	30 Lbs. Per day.	20 Lbs. Per day.	10 Lbs. Per day.
Cattle				
10.....	48 tons	36 tons	24 tons	12 tons
20.....	96 tons	72 tons	48 tons	24 tons
30.....	144 tons	108 tons	72 tons	36 tons
40.....	192 tons	144 tons	96 tons	48 tons
50.....	240 tons	180 tons	120 tons	60 tons

UNIVERSAL FARMING

Cost of Filling Silo.

The cost of filling the silo involves cutting the green feed, hauling to the cutter, the power required for operating the cutter, and the cost of the labor involved in each operation. It will be apparent that the cost of hauling from the field to the silo will depend upon the distance the feed must be hauled; upon the acres of ground to be cut over; the necessary help and teams hired—in fact, wholly upon the conditions existing on each particular farm. The economical and convenient way of filling is for the farmer to exchange work with his neighbors as he does in haying or threshing.

At the Iowa station for a period of eight years it has cost from 60 to 75 cents per ton to fill the station silos. The higher cost was due to a long haul of and rainy weather when the hauling and loading were more difficult. These figures include every item of cost, including interest on investment in teams, wagons and machinery.

The following statement, furnished by a very successful dairy farmer, gives a fair idea of the cost of filling the silo: "We hire an extra man or two and make long days with the regular help during the filling season. We have our own outfit, silo cutter and engine (16-horse gasoline), also corn binder. We use our regular low wheel flat rack wagons and have two pitchers in the field.

Four teams and drivers.....	\$16.00
Corn binder, man and team.....	10.00
Cutter and engine with one man.....	15.00
Two extra men to pitch.....	5.00
Two men in the silo.....	5.00
Thirty gallons of gasoline.....	3.60
<hr/>	
Total cost per day.....	\$54.60

"This crew will put in from 85 to 90 tons per day, thus it costs around 60 to 65 cents per ton to fill the silo."

Men who make a business of furnishing the power and cutting machinery for filling silos write Kansas Farmer that they take filling contracts at 25 to 35 cents per ton. These figures include no expense for labor except a man to look after engine and cutter.

Silo for Summer Feeding.

On many farms there is no pasture, and on many more there is a scarcity of pasture, and in either case is precluded the possibility of keeping the live stock the farm owner desires. On such farms silage will take the place of pasture. The use of silage is cheaper and much less laborious than soiling methods. The summer silo will supplement short pastures and maintain the milk flow or keep the calves and young cattle growing. On thousands of farms the summer silo has become a necessity, and while in the middle west farmers generally may not yet be thinking much about the summer silo, it nevertheless holds for them possibilities of which many have not thought.

Size of Silo and Acres Required to Fill.

The relation of the size of the silo to the amount of silage to be used daily and the number of acres of crop required to fill the silo and to feed the dairy herd of from 14 to 50 cows at the rate of 30 pounds of silage per day is shown in the table following:

UNIVERSAL FARMING

Number of cows.	240 days at	Acres of corn		
	30 pounds Per day.	At 15 tons Per acre.	Inside Diameter.	Depth of Silage
10.....	36 tons	2½ to 3 acres	10 ft.	24 ft.
20.....	72 tons	4½ to 5 acres	12 ft.	30 ft.
30.....	108 tons	7 to 8 acres	14 ft.	34 ft.
40.....	144 tons	9 to 10 acres	18 ft.	29 ft.
50.....	180 tons	11 to 12 acres	20 ft.	30 ft.

It will be noted from the foregoing table that the smallest silo considered has a capacity of 36 tons for feeding 10 cows 240 days.

The above tables are figured on the basis of a feeding season of 240 days, or approximately eight months. This may be considered generally a long season, but many years the season is this long. The object of the silo is to improve the feeding operations and to do so feed must be provided when it is needed. In other words it is urged that in the silo enough feed must be placed to meet every possible requirement of the farm live stock.

Erroneous Ideas About Silos.

It is not unusual to receive an inquiry asking if it is a fact that the acid of silage is injurious to the digestive organs of the animal and if silages does not cause cattle to lose their teeth, etc. These are mistaken ideas, and wholly without foundation in fact. Silage is not detrimental to the health of animals. On the other hand, it is advantageous. Good silage is only slightly sour. The mild acid is extremely palatable and in general is highly beneficial. The feeding of silage is not experimental.

Silo Pays for Itself Annually.

An investment in a silo will pay one hundred per cent dividend per year. Many silo users have written that their silos paid for themselves the first year. It saves the forty per cent of the corn crop which heretofore has each year gone to waste. It saves all feed in the most palatable condition and with its highest feeding value. Silage keeps the herd thrifty and growing throughout the feeding season, whereas ordinary winter feeding methods do not accomplish this. The feeder with a silo has butcher-beef in his herd for sale at any time.

Silage for the Steer.

At the Kansas experiment station a herd of 2-year-old steers was selected and divided into three lots. One lot was fed silage, alfalfa, corn and Kaffir; the second did not receive silage; the third had Kaffir roughage in the place of silage. Each lot was finished with the addition of cottonseed meal to the grain ration. The results of the test showed that the first lot fed silage made 100 pounds of gain at a cost of \$4.91; the second lot, which received the same kind of feed except the silage, made 100 pounds of gain at a cost of \$5.44; and the third lot, in which Kaffir roughage was substituted for silage, made gains at a cost of \$6.68 per hundred; lot 2 at 4.70; and lot 3 at \$4.50. These results show the value of silage in the fattening of beef cattle.

Silage vs. Grain for Milch Cows.

The farmer who milks cows—like the beef feeder—does not so keep his records as to show the actual comparative results obtained from feeding a ration composed largely of silage as compared with his former feeding methods. He knows, however,

UNIVERSAL FARMING

that the silage-fed cow produces a larger milk flow than the cow eating dry forage, and that the cow milks longer and that his cream check is larger. These are the essential results to him.

The Ohio experiment station obtained 96.7 pounds of milk and 5.08 pounds of butter fat per hundred pounds of dry matter, when fifty per cent of the dry matter was derived from silage and 18 per cent derived from grain. The cows produced 81.3 pounds of milk and 39 pounds of butter fat per hundred pounds of dry matter when 57 per cent of the dry matter was derived from grain, no silage fed. The average net profit per cow—over cost of feed—was \$5.86 with the silage ration, and \$2.40 with the grain ration. These are figures showing the extent to which silage can be made to take the place of grain fed to milch cows. For practical purposes a ration of 30 to 35 pounds of silage per day with 6 to 7 pounds of alfalfa hay—which is all the hay a cow eating the above quantity of silage will consume—is a satisfactory ration for milk production.

Silage Consumed by Different Kinds of Stock.

Winter calves, eight months old, will eat 15 to 25 pounds of silage per day. Winter breeding cows, 30 to 50 pounds.

Beef ranging in age from 18 to 22 months will eat during the first period of fattening 20 to 30 pounds of silage, and during the finishing stage, 12 to 20 pounds per day.

Milch cows will eat 30 to 50 pounds of silage per day, depending upon the weight of the animal and amount of milk produced.

Winter breeding sheep will eat 3 to 5 pounds per day. Fattening lambs require 2 to 3 pounds, and fattening sheep 3 to 4 pounds.

Hogs will eat 3 to 5 pounds per day, varying, of course, with the size of the hog. It should be kept in mind that silage will enter into the winter feeding of the hog to the same extent only that pasture does in the summer season.

Horses not at work can be fed 15 to 20 pounds of silage per day, safely, and horses at work 10 to 12 pounds.

Lyons, Okla., Nov. 10, 1912.

Gentlemen—Sirs—To whom it may concern: As to silo, I have had one for twenty-two years, filled every year but two. Reason for not filling the two, I thought I had more feed than I needed—but to quite an disadvantage—not so much milk, and more grain. Spring came, feed all gone. No man can feed steers or cows, or sheep, as cheaply on pasture as with a silo, by one-third to one-half. On silage, with 20 acres of land, good land—if not good, cows will make it so—twenty head can be kept, on same. The cost for filling here is about 35 cents per cow per month, taking corn on hill. Can fill with cowpeas, etc. The kind of silo I would recommend would be cement. There are three kinds, solid wall, hollow wall, of blocks, and a cement plank, 3 inches thick, 10 inches wide, 30 inches long, joints broke and hooped. For a warm climate, cement will not give trouble from shrinking when empty, and will stand wind better. With a balanced ration milk cows will keep fat, for beef I have been acquainted with silos since 1878.

Kaffir Makes Good Ensilage.

Kaffir will make a very good silage. I have seen Kaffir silage from quite a number of silos this year, and have found it to be almost if not quite as good as corn silage. The addition of cowpeas to Kaffir will make it almost ideal. If you

UNIVERSAL FARMING

have your Kaffir planted rather thickly, the cowpeas might not make a very rank growth. The practice of growing cowpeas in the same field with corn is very generally practiced in the South, with splendid results and is well worth a trial.—G. C. Wheeler, Kansas Agricultural College.

A Silo Makes the Farm Larger.

Anyone who keeps as many as eight or ten cows cannot afford to be without a silo. Siloing such crops as corn, Kaffir, milo and cane means the keeping of more cows on the same acreage. The silo furnishes the best method possible for storing and feeding the wasting of forty per cent of the total crop grown. When crops are put into the silo they furnish a green feed for the winter and this serves the same purpose as the grass does in the summer. In this way the farm animals can be furnished with the best of feed during the entire year. Silage will take the place of pasture during the dry summer or when the pastures are short. A cow usually eats from 30 to 40 pounds of this feed per day.—O. E. Reed, Kansas, Station, Manhattan.

Sorghum for Silage.

Ten years ago six of the beef cattle finishers in Boyle county, Kentucky, erected seven silos, 34x40 feet, with a five-foot foundation, each having a capacity of 850 tons. We all filled them at first with corn grown from grain, checked about 3 feet 10 inches each way. The second year I filled my silo with redtop sorghum which had matured the seed and saw no difference in the feeding value between the sorghum and corn silage. By the sixth year everybody had quit the use of corn and was using redtop sorghum. There are a great number of silos throughout this section now, and practically every one of them is filled each year with sorghum.

Last season I filled my silo twice and fed out two bunches of cattle. I can see no difference in the feeding value of the corn and the sorghum silage, but I can raise three times the tonnage of sorghum per acre as of corn grown for grain.

If there is a telephone line in reach of you, have a phone put in your house. If there is none, get together with your neighbors and build one.—J. K.

Kaffir Corn as a Food.

(Prize Letter.)

Kaffir corn ground into meal makes excellent bread and is very healthful. Make as you would Indian corn bread. Use eggs, sour milk, soda, salt, and meal to make a batter not too stiff. Dissolve the soda in water and stir in last, then bake. It will be found to have a fine flavor. Kaffir corn also makes a very appetizing breakfast food. Cook as mush and eat with sugar and cream. For gingerbread use half Kaffir meal and half wheat flour.—Mrs. J. L. Ratekin, Goldtwaitte, Texas.

Kansas Horse Plague.

The Kansas horse plague is nothing else but what they call throughout the cotton belt, the blind, the sleepy and the wild staggers. It originates from smut in

UNIVERSAL FARMING

dry ears or in drouth-stricken districts. It generally is the worst. This fine smut accumulates on corn and in pastures. They inhale said smut through their nostrils and that affects their brain and there is no cure for the same.

An old southern veterinary told this to my father and I have not heard of any cure. Here is a preventive: As soon as you hear of horses dying of this disease, take them in off the pasture and try feeding them with hay of any kind which has been sprinkled with water containing half a pint of sorghum and a tablespoonful of salt to a gallon of water. Where you have a chopping machine chop up your hay and add to same corn chops or bran.

Plant Some Roots for the Stock.

Better plant a few roots for feed this winter. About half an acre of mangels and rutabagas. All kinds of stock seem to relish the mangels, and they keep good all winter in the root cellar. This year intend to plant a piece to mangels and stock carrots. The carrots are better for horses than any other kind of roots, and they like them better. The mangels and rutabagas are fine for milk cows. Sheep need something of the kind, and brood sows will almost winter on them. So many can be raised to the acre that they make a very cheap feed.—A. B. J., Dalbo, Minn.

Row Culture for Alfalfa.

For growing alfalfa seed row culture is undoubtedly the best, and it has many advantages for hay and in dry-farming. Alfalfa in rows 24 inches apart if kept free from weeds will have three times the moisture it would have at 8 inches. This gives it a better chance to establish itself. A deep furrow can be opened with the lister, a heavy bull tongue run through afterward, and the ground then cross-harrowed till it is smooth. The smoother the ground the less moisture will evaporate. By this method on a loam soil or a soil with a compact subsoil a deep-tilled bed is secured for the roots, to which the surplus moisture naturally drains. In row culture a depression of a couple of inches would save the plants from getting the full effect of the harrow teeth.—Norbert B. Behl, Kit Carson, Colo.

Why We Should Plow Deep.

(By E. R. Parson, Colorado's Dry-Farming Expert.)

The only humus we have in the soil comes from the sod. This is the gold of agriculture, and there is only one way to save it. Plow it under as deeply as possible. The evils of surface farming can be seen in eastern Colorado today. The humus is gone into the atmosphere. Here and there a field is ruined until even fodder will not grow on it.

Pershing, Farrel, Green, and all the successful pioneer dry-farmers of a quarter and half a century ago will tell you their bank accounts came from deep plowing. G. L. Farrel, who last year made \$4,000 on 100 acres of wheat by feeding it to hogs, is farming on a 12-inch precipitation. He is a bona-fide dry-farmer in every sense of the word; he plows eight to nine inches and often subsoils down to fifteen.

Which is better, to hold your moisture on the surface when the evaporation is sometimes five per cent a day, or to plow deep and get into the subsoil where

UNIVERSAL FARMING

it is less than five per cent a month? In thirty-five years I have never lost a crop by drought or bought a pound of hay for my stock. I can understand though that a peculiar combination of the weather with other elements might possibly affect this record; but that is how it stands today, and all my neighbors know it. Deep plowing did it.

The Ideal Seed-Bed for Wheat.

A well-pulverized, compact furrow slice, with a thin layer of fine, loose soil over the surface, presents conditions that are favorable for the conservation and proper movement of the soil moisture. When the furrow slice is well pulverized and compact it makes good contact with the subsoil and offers conditions favorable for the rise of the moisture from below. The fine, loose layer at the surface, favorable to the development of the young plant roots, readily absorbs light rains, and helps to prevent the escape of moisture by evaporation at the surface.

To secure an ideal seed-bed, plow early and follow very closely with the roller and harrow. It is a good practice to roll and harrow, each morning, the land plowed the day before. The disking of stubble land before plowing is frequently a decided help in the preparation of ground for wheat. A common rotation in Ohio requires that corn ground should be seeded to wheat. The best results are obtained by plowing and fitting the ground, if the soil is heavy and compact, but if light and open it may be prepared by thoroughly disking and harrowing.—Professor A. G. McCall.

As a general proposition it may be said that the sow that has pigs before she is a year old will disappoint her owner.

Clover silage makes excellent hog feed in winter. They eat every bit of it. Some waste in feeding corn silage to hogs.

Cut the silage into one-half inch pieces.
Distribute thoroughly in silo and pack well.
Keep bees at any rate. They are no trouble.
Corn cut too early makes sour, watery silage.
Corn cut for silage when kernels begin to glaze.
Good farming is impossible without good teams.
A little wet straw with oats sown on it seals the silo effectively.

Fertilizer Facts Worth Knowing.

The three main plant foods are ammonia or nitrogen, phosphoric acid and potash.

The use of complete fertilizer involves a waste in all cases where the soil already contains enough of any of the elements of plant food. This suggests the importance of knowing your soils. This can be determined by a series of tests with complete fertilizers and incomplete ones. It may generally be accepted that

UNIVERSAL FARMING

soil that has received liberally of barnyard manure, or crops, particularly clover, turned under, and if it produces a large growth of straw and fodder but light yields of grain, needs phosphoric acid, the cheapest of the three chief fertilizer elements.

The same plant food that will produce thirty bushels of wheat is sufficient to produce 165 bushels of potatoes or other vegetables in proportion, or several hundred bushels of fruit. Where there is a scant supply of fertilizer it is well to know this, so it may be used to the best advantage. Thirty bushels of wheat is worth, we will say, thirty dollars, but 165 bushels of potatoes might sell for \$80 or more, and the vegetables or fruit might sell for a couple of hundred dollars.

For early crops use highly available fertilizers—well rotted manure, available phosphoric acid and nitrogen. These can be taken by the plants freely as long as the ground is moist. If for trees, grape vines, shrubs, permanent pastures, etc., the slower acting bone fertilizers are recommended. They should be put on more liberally, though, because they become available slowly, by the action of the moisture in the soil, and besides they are intended to give benefits for years.

Phosphoric acid, as referred to in fertilizers, in South Carolina rock (the rock is in other southern states also), treated with sulphuric acid to make it available. It is also called phosphates and superphosphates. Nitrogen corresponds with nitrate of soda or sulphate of ammonia. Potash to sulphate of potash and muriate of potash. Common saltpeter is a combination of nitrogen and potash. Bone meal furnishes nitrogen and phosphoric acid. Barnyard manure is a complete fertilizer having ammonia potash and phosphoric acid in varying percentages.

If plants come with a rich, dark green color and grow luxuriantly, we may conclude that the soil has enough nitrogen. If they are sickly and yellow, with good weather conditions, it is a sign that nitrogen is needed. If potatoes grow large tops and scant tubers, it indicates enough nitrogen but deficiency of potash. Plenty of straw or stalk and light grain yield betrays presence of nitrogen in sufficient quality but a deficiency of phosphoric acid. We feel safe in saying that three-fourths of the land put in wheat this season should have 200 to 300 pounds of phosphate per acre, and it would show astonishing results next harvest in earliness of maturity, soundness of grain and increased yield.

How Lime is Applied.

In using lime on soils that need it, it need not be harrowed or plowed in unless the work of planting is soon to begin. Usually it is best to apply the hydrated lime broadcast some weeks before the crops are to be planted. When this is done the lime will sink into the soil as it has a tendency to do.

Lime on cloddy, low or sour land may be used in amounts ranging from 400 pounds to a ton, or even more in some instances, depending of course upon the character of the soil. European farmers use lime freely and it might not be out of place here to remark that their average yields on some of the staple crops are much greater than ours.

One good way to tell whether or not lime is needed in the soil is by the litmus paper test. Take a piece of blue litmus paper, place in contact with a ball of moist soil and if the blue paper turns pink the soil is acid and probably needs lime. However, it may need lime and still not be in an acid condition.

UNIVERSAL FARMING

Sow Cowpeas—Stop Buying Feed.

No complaint of the prices paid for dairy products in the last six months is justified from the producer, but in too many cases the high prices received have been paid out largely for feed, especially for mill feed. And this is not necessary, for there is no farm in the West on which protein feeds cannot be grown with which to balance the corn. In some sections, clover does well and in others alfalfa; in some sections neither is a success, but where this is the case cowpeas can be grown. If you are tired of paying \$1.50 per hundred for bran, why not get some cowpea seed at once and plant it in rows like corn, giving two cultivations, leaving the ground level so mowing can be done easily. Planted within the next few days either New Era or Whippoorwill cowpeas will mature and make an immense amount of feed equal to alfalfa.—J. K.

When cooking beets or mangel and feeding same to your brood sow always put scraps of meat or fat bacon with it. It will take the place of tankage.—J. K.

OHIO FARMER IS FARMING ON THIRTY ACRES OF GOOD GROUND.

**Andrew Brown is Making a Success on a Small Area—Proves What Can be Done—
Not So Much the Number of Acres as Way Each Acre is Made to Produce.**

It has been said, "People of moderate means should not farm too much land. A man can start on twenty acres; forty acres will do; eighty is enough; 160 an abundance; 320 a misfortune; and 640 a calamity." One criticism of the American farmer is that he has tried to farm too much land. He has worked on the principle that to increase his income he must increase the area of his farm, and the consequence is that he has spread his efforts and probably has not made as much real profit as he would have made by concentrating the same amount of labor on fewer acres. With the increase in the value of land and the growing scarcity of farm labor, the young man of limited means had much better start with a small farm, say 20 to 80 acres, and practice intensive agriculture than to undertake to pay for a larger area. It is not so much the number of acres that count as it is the way each is made to produce.

The experience of Andrew Brown, a successful Ohio farmer, is an excellent example of what can be done on a small farm. Mr. Brown is 76 years old, and has been farming a 30-acre farm for over forty years, long enough to prove that it is possible to make a good living on a few acres, well tilled. He began in 1869, on his father's farm, and has lived there ever since. His land is well drained and fairly fertile, producing from 50 to 60 bushels of corn, the same of oats and from 20 to 25 bushels of wheat. An interesting thing about this man's experience is that he has always followed straight grain farming and has kept up the fertility of his soil without the use of much commercial fertilizer. The only live stock he keeps is two horses, two cows and a few hogs, depending upon his grain for most of his income. He has his farm divided into seven fields of four acres each. His crops are corn, oats, wheat and grass. All barnyard manure is carefully saved and applied to the land and occasionally a crop of clover is plowed under. By having only a few acres to care for, crops are well tended, weeds are kept down and fences are kept in good repair. He has been able to do his own work with the help of his boys, consequently he has not been obliged to depend upon hired labor. He has a workshop and all repairs of farm implements are made right at home, thus saving expensive repair bills.

UNIVERSAL FARMING

This farm is practically a self-sustaining institution, the farm, orchard and garden furnishing the living for the family. The old log house has been remodeled into a very comfortable modern farm house. The noticeable thing about the farm buildings is that, while they are only ordinary, they are well cared for, and there is an air of neatness about the place.

Mr. Brown has not only made a good living for himself and family, but has been able to save enough money to loan to his neighbors. He has raised five children, four boys and a girl, and given them a high school education. They have all lived happily and well, on a thirty-acre farm.—T. L. Wheeler, College Agriculture, Ohio State University.

Digester Tankage.

In making up a ration for any domestic animal, some consideration should be given to the diet of the animal in its wild state. For instance, the hog in its wild state, when it selected its own ration, fed upon animals as well as vegetable food. Nuts, roots, etc., with grubs, worms and occasionally carrion, made up the balanced ration, for which the hog had a natural craving. Under domestic conditions, the hog is generally forced to subsist upon a straight vegetable ration. This is an unnatural condition, and the desire for meat food is shown in frequent attacks upon poultry and also eating of the young by the sow.

The hog's ration should contain some animal matter. For this purpose there is nothing equal to Digester Tankage. This feed is made from scraps and bones from city markets and butcher shops. This material is cooked under high pressure, and afterwards the grease is pressed out and the residue is ground, screened and placed in bags ready for feeding.

Digester Tankage can be fed in any of several ways. At the Ohio Experiment Station, very satisfactory results were obtained by feeding Tankage in the form of a thin slop. Some feeders make a slop composed of Tankage, corn-meal and middlings, while others feed it dry in feed-troughs.

The effect of feeding Digester Tankage to hogs can be readily seen in their general appearance. They have a sleek glossy coat during the winter months, just as they would have if running on a clover field. Then too, Digester Tankage contains considerable Bone Phosphate of Lime, which goes to the building up of the framework of the hog. Digester Tankage keeps the hogs in good healthy condition, develops the frame-work, and makes a big saving in the cost of producing pork.—T. L. Wheeler, College of Agriculture, Ohio State University.

Select seed corn in the field before harvesting.—J. K.

The Sorghum Crop for the Dry Farms in the Southwest.

(Written by A. H. Leidigh, Assistant Professor of Crop Culture, Kansas State College of Agriculture, Manhattan, Kansas.)

The sorghums are adapted to withstand heat and shortage of moisture. They are capable of lying dormant during long dry spells and then producing a splendid growth upon receiving rain late in the season. Sorghums readily adapt themselves to the conditions peculiar to Kansas and other southwestern states, and are among the most reliable and profitable summer crops to grow. They are quite as well

UNIVERSAL FARMING

adapted to almost every part of the state as corn, and if grown will be found to be very close competitors of corn, even in the best corn sections, while in the western part of the state they produce larger yields than corn. In feeding value, their grain, hay, and silage compare favorably with other crops.

The general term "sorghum" includes not only those sweet sorts erroneously called "cane," but also the kaffirs, broom corn, and several others. Those having sweet juice which is comparatively lacking in sweetness are called non-saccharine sorghums.

Saccharine Sorghums.

The saccharine sorghums are used for hay, silage and syrup. Our best varieties are Black Amber, Orange, and Sumac. Black Amber is an early sort, and because of this fact it is especially well adapted to the western part of the state. Orange, a medium late variety, is extensively grown throughout the state. Sumac, a slightly later variety, is becoming very popular in central and southeastern Kansas.

The non-saccharine varieties are grown for grain, hay and silage. Kaffir and milo, of which there are many types, are the sorts grown most extensively in Kansas. Kaffir may be successfully grown in all parts of the state, except in the extreme northwestern counties, where it is not a reliable crop. The Blackhull White is the most popular variety.

Milo is an early grain sorghum. It is adapted only to the western one-third of the state. Dwarf yellow is the only milo we recommend. Milo will mature in less time than Kaffir; it also stands more dry weather and is as good a yielder. In feeding value kaffir and milo grain are about equal, but kaffir fodder is the better. Experiments show that kaffir or milo is about 90 per cent as good as corn in feeding value.

Soil Requirements and Seed Bad.

While the sorghums are adapted for growing on almost any kind of soil, they produce best on fairly heavy, well-drained loams rich in humus; but when grown on gumbo, hard-pan, sandy or other poor soils, they are more successful than most other crops.

These crops usually yield well with little care. A thin top-dressing of barn-yard manure applied to the field previous to planting would increase the yields materially. Sorghums are excellent to plant on prairie sod or alfalfa sod. On land which has been cropped for a number of years, the sorghum needs deep, thorough preparation of the soil. The lower part of the seed bed should be well settled and the surface soil quite loose. This condition can be best secured by fall plowing. If the land is apt to blow, instead of plowing, fall listing is advisable.

Feed Units.

Feed Units—On a unit basis the relative feeding values of the chief nutrients, Protein, Fat and Carbohydrates (as determined by the leading investigators) are reduced to common terms and made into a direct ratio. One pound of protein is considered of the same value as two and one-half pounds of Carbohydrates, and one pound of fat is equal to two and one-quarter pounds of carbohydrates.

To find the feed units, multiply the protein content by 2.5 and the fat content by 2.25 and add these to the carbohydrates content.

To find the nutritive ratio, divide total digestible carbohydrates, plus the total digestible fat, multiplied by 2.25.



As an example to show how our land is wasted, Germany with all her 60,000,000 people could live in Oklahoma and the entire population of the United States could live and prosper in the State of Texas and would have products to export if the proper scientific methods and care were used in farming the soil.



Sweet Potatoes, 300 bushels to the acre; Feterita, 75 bushels to the acre. There is no country better adapted to this than the Gulf Coast of Texas.

UNIVERSAL FARMING

Illustrations below are based on Bulletin No. 41 of United States Department of Agriculture.

Comparative Percentage of Feed Units In

COTTON SEED MEAL.....	51.76 Per Cent
One-half the weight is nourishment.	
WHEAT BRAN	49.49 Per Cent
One-fifth only is nourishment.	
CORN MEAL	13.34 Per Cent
One-eighth only is nourishment.	

Comparative Cost Per Feed Unit.

CORN MEAL at \$1.00 per 100 pounds,
6 1-4 cents per feed unit.
WHEAT BRAN at \$1.25 per 100 pounds,
6 1-4 cents per feed unit.
COTTON SEED MEAL at \$1.50 per 100 pounds,
3 cents per feed unit.

Cottonseed Meal and Hulls—A Good, Cheap and Sufficient Horse and Mule Feed

in Themselves.

According to the Wolf-Lehman standards of feeding, which are accepted as authoritative the whole world over, a horse or a mule of one thousand pounds weight doing moderate work, should have every day a ration, containing not less than twenty-four pounds of dry matter, and it should contain at least:

0.6 Digestible Fat
2 lb. Digestible Protein
11 lb. Digestible Carbohydrates.
0.6 lb. Digestible Fat

A daily ration consisting of

5 lb. Cottonseed Meal
15 lb. Cottonseed Hulls

Contains:

2.31 lb. Digestible Protein
.86 lb. Digestible Fat

Thus in these two really important components fully and liberally conforming to the standard. The dry matter and carbohydrates necessary to balance the ration are not deemed vitally important, since in the South these are almost always abundantly supplied by some pasturage, or by any of the cheap hays and grasses grown at home and thus advantageously utilized.

Cotton Seed Meal for Poultry.

The superiority of Cottonseed Meal as a food for cattle, Horses, Mules and Hogs, either as a fat and flesh producer or for milk and butter has so long passed the experimental stage as to admit of no discussion. Its use as a most valuable hog feed, giving growth, flesh development and fecundity is also established beyond controversy. That is equally valuable as a supplemental grain ration for horses

UNIVERSAL FARMING

and mules under all sorts of conditions, and especially so for brood mares and young colts, is also acknowledged by all who have given it a fair trial.

So, too, its use as a most superior food for all kinds of fowls is being demonstrated in the yards of many poultrymen who have learend by experience and test to give it first place as an egg producer, and for fat, flesh and condition.

For, as will be at once seen, the same high albuminoid content which produces flesh and milk in cattle, development and fecundity in hogs, bone, muscle and endurance in horses will give eggs, vigor and condition in fowls.

As in other cases, it should always be fed to poultry as a supplemental ration only, and mixed always with some less highly concentrated food—corn chops, corn meal, wheat bran, shorts or small grain, or with cottonseed hulls, if wet and soured. Mixed in this way, about one-third to one-half cottonseed meal, it may be fed either dry or wet into a thin dough, and the result will be quickly shown in added vigor, rapid growth, glossier plumage and in increased egg production.

In fact, as with hogs, it seems to act almost entirely as a preventative of nearly all diseases, and instances are absolutely unknown where any epidemic prevailed in flocks having it as a habitual ration. On the contrary, numerous cases can be cited where they have remained entirely immune and healthy while neighboring flocks not having it have been destroyed by cholera and kindred diseases.

Professor W. A. Henry, dean of the Wisconsin Agricultural College, and perhaps the greatest practical animal feeder in the world, under the heading, "Cottonseed Meal for Horses," quotes approvingly Gebek, a recognized authority on horse feeding as follows: "Draft horses do well on a ration containing two parts of cottonseed meal." He then adds on his own account: "The use of cottonseed meal for horses will be greatly extended at the South if experiments reveal equally good results." May this prophetic utterance be fulfilled. Numerous experiments have revealed and confirmed these very results.

In truth cottonseed meal as a feed for horses has passed far beyond the stage of experiment. To put cottonseed meal into the inside of an animal seems to me to be a direct insult to a bountiful Providence. If our farmers were to take their own freight free, cottonseed meal, feed it first to their farm animals, and next to their farm lands—oh, what would come of it?

There are in the fifteen producing states to day 5,698,114 head of horses, 2,594,199 head of mules; each one of these should eat at least one pound a day or four sacks of cottonseed meal annually. This would mean a brand new demand on the cottonseed meal market alone in the states where it is produced, of 1,658,462 tons per annum, or 500,000 tons more than is actually made.

The value of commercial fertilizers is determined by the amount and value of their three ingredients, ammonia, phosphoric acid and potash, in the same way the value of a horse feed may be ascertained by determining the amount and value of its three principal components—protein, Carbohydrates and ether extract. One of the latest estimates, based on the value of many different animal feeds, places their value as follows: Protein one and one-half cents per pound, carbohydrates one cent per pound and ether extract five cents per pound. Let us now in the light of these conservative valuations, compare corn, pre-eminently the leading horse feed of the South—of America—with cottonseed meal.

A Ton of Corn Contains

10 per cent, or 200 pounds of protein, worth.....	\$8 3.00
70 per cent, or 1400 pounds carbohydrates, worth	14.00
5 per cent, or 100 pounds ether extract, worth.....	5.00

Giving a total value of \$22.00

UNIVERSAL FARMING

Now One Ton of Cottonseed Meal Contains

40 per cent, or 800 pounds protein, worth	\$12.00
30 per cent, or 600 pounds carbohydrates, worth.....	6.00
13 per cent, or 260 pounds ether extract, worth.....	13.00

Giving a total value of.....\$31.00

In an official report of the Georgia Department of Agriculture, 1904, the State chemist, Mr. John M. McCandless, on the subject of "Horse and Mule Feeds," writes: "When the Georgia farmer has failed to raise sufficient corn for his mules, the cost of feeding his work stock, when he has to buy Western corn at ruling high prices, must make a ruinous inroad on the net sum he gets for his cotton crop. Many farmers feed their stock 20 pounds of shelled corn and 10 pounds of fodder (blades) and think they are feeding them in the best manner. As a matter of fact the poor mule gets out of this ration only two pounds of protein, when he should at hard work, have nearly three; and gets over 19 pounds of carbohydrates when a rational standard of feeding would only call for about 13, the nutritive ratio of the corn and fodder ration being 1 9.6, when it should approximate 1 5.4. A comparison of cottonseed meal with corn as to its feeding value shows the great superiority of cottonseed meal."

With such unequivocal endorsements from the highest sources, cottonseed meal must eventually come into its own as a horse feed. Mr. McCandless then gives the following grain ration formulas: "Light work, 8 pounds ground corn and oats, 1 pound cottonseed meal; average work 10 pounds corn and cob meal, 2½ pounds cottonseed meal; hard work; 10 pounds corn and cob meal, 4½ pounds cottonseed meal."

Let us give, in a word, my experience, rather than my views and conclusions, on the horse feed problem: Several years ago, when I was a cotton crusher on a small scale, (I am not now even remotely connected with that worthy calling) it was at certain times better to do anything with meal than to sell it. There came into my stock family unexpectedly two colts. Just like a baby, is never wanted until it comes, and then immediately the household goes crazy over it; just so I took on about my colts. At that time oats were about \$36 per ton, and corn about \$26.00. I began feeding my mares on these expensive grains ground with a little cottonseed meal dust in. They took to it all right, and before the colts were six weeks' old they were nibbling at their mother's feed. Since more colts have come. The oldest, now five years old, and none of them have ever passed a day in their lives without eating some cottonseed meal. They have never been out of fix. The older ones weigh 1100 pounds and are 16 hands high—decidedly larger than dams or sire. They have carried me fifty miles a day without breathing deep.

Here is a clean-cut decisive example of cottonseed meal as a component part of a horse's ration.

I will simply add to the above testimony that for the past five years my stable has consisted of 10 pleasure and work animals—one a mule that could pull a lion out of his den—and every one of them have been fed with one pound or more of cottonseed meal. I have never seen a sick one in that time, or one that was not ready for work. I have had the good fortune to win some blue ribbons and silver cups, and I may be pardoned for adding, and I do so in the interest of truth only, that when I drive up to the church grounds the people look up and say, "Who comes?"

HENRY C. HAMMOND.

Augusta, Georgia, June 20, 1907.

UNIVERSAL FARMING

Nitrogen in Legumes.

Some of the points established by science and confirmed by practice are: That legume bacteria gives us nitrogen from an inexhaustible supply, that these bacteria do not thrive in acid soils, and that such soils are sweetened by limestone, which is also in inexhaustible supply. It is a matter of common knowledge that legume may be grown on any soil that is sweetened and contains sufficient mineral elements of plant food. Another truth of science is that one product of crop residues and other vegetable matter is humus, and that humus in the soil is the best means of securing some control over what are called the uncontrollable factors in crop production, heat and moisture.

The leguminous crops, such as clover and alfalfa, are not equal to grasses as soil protectors, but are superior to grasses as soil fertilizers, since they increase the total available supply of nitrogen in the soil. This is due to the action of bacteria which are found on the roots of leguminous plants, and which take free nitrogen from the air in the soil and make it available for the use of plants. Moreover, perennial legumes, such as clover and alfalfa, are very deep feeders and take a part of the mineral elements of their food from the soil below the depth of the feeding ground of ordinary crops.

Cottonseed Meal for Hogs.

Texas Experiment Station.

A good growing ration may be based on one pound of dry mixture per hundred pounds of live weight. For quick fattening this may be doubled.

When ready to feed, add fresh water to the feeding ration sufficient to bring a thin slop, about the consistency of buttermilk and give the hogs all they will clean up.

All hogs eat it greedily and all thrive on it from the lordly head of the herd to the tiniest grunted. But for "piggy" or suckling sows it is especially valuable, giving to the pigs both before and after farrowing a growth and vigor attainable with no other feed on earth.

As to the feeding value of cottonseed meal compared with corn, chemical analyses, confirmed by years of practical tests, answer this. A hundred pounds of corn contains from six to ten pounds of protein, four to six pounds of fat and about sixty-five to seventy pounds of carbohydrates.

A hundred pounds of cottonseed meal contains from forty-five to fifty pounds of protein, from eight to twelve pounds of fat and about twenty-five pounds of carbohydrates.

The agricultural experiment stations and the agricultural books all teach us these things:

First. To feed a balanced ration.

Second. That a balanced ration is one in which the three important feed elements, protein, fat and carbohydrates are combined in such proportions as to meet the needs of the body in the best way at the lowest cost.

Third. That protein is the most valuable food constituent, supplying growth, muscle, bone and lean meat, and by it the value of all feed is measured.

Fourth. That fat in feed supplies heat and energy and builds up fat in the body, but makes no muscle or flesh.

UNIVERSAL FARMING

Fifth. That under the general term carbohydrates are classed the starch and sugars present in all feeds forming the cheapest and most abundant feeding material and, like fat, giving heat and energy, but making no flesh, bone or muscle.

Sixth. That a balanced ration for hogs should contain about one pound of protein to every five pounds of fat and carbohydrates.

Now, keeping these truisms in mind it is easy to see from the figures already given that corn is seriously deficient in protein, is not properly balanced and is an expensive and insufficient ration when fed alone; that cottonseed meal in protein and fat combined is about five times, and in protein alone about six times as valuable as corn and while too rich in protein to be fed by itself when combined with corn or cottonseed hulls in proportion of about two parts corn and one part cottonseed meal, gives a ration which, with ordinary grazing, almost exactly fulfills the scientific requirement for a balanced hog feed, and of which the committee appointed by the Texas Swine Breeders' Association to report upon the feeding of cottonseed meal, after a thorough investigation, say in their formal report, "is the most economical ration of which we have any record." When it is remembered that this is the solemn and deliberate verdict of a committee of expert and scientific swine breeders and feeders these words ring with importance to the whole bunch. For they mean that in cottonseed meal and hulls, supplemented by her unquestionable climatic advantages and cheaper lands, the South can produce cheaper pork than the great corn belt of the Northwest, and this can but mean the ultimate transfer of the hog-producing center of the country from the Northwest to the South, and an added wealth and prosperity to our whole country.

Cottonseed Meal and Hulls Compared With Whole Cottonseed.

The Tennessee Experimental Station, in Bulletin No. 2, on "The Rational Use of Feeding Materials," issued April, 1903, gives together with many other materials, the composition of seven of those foods most commonly used in this country and then, using the basis of three cents per pound for digestive fat, the same for digestible protein and five-eighths of a cent a pound for carbohydrates, find the following valuable table of relative values:

	Crude Protein	Crude Fat	Carbo Hydroits	Value Per Ton
Mixed Meadow Hay	3.0	1.1	43.4	8.24
Whole Corn	8.2	3.4	67.5	15.38
Oats	8.1	4.1	44.7	13.50
Corn Meal	5.3	3.5	59.3	12.68
Wheat Bran	12.0	2.8	44.5	14.44
Whole Cotton Seed	10.2	16.4	30.9	19.82
Cotton Seed Hulls	2.2	1.6	33.5	6.46
Cotton Seed Meal	35.3	10.9	20.1	30.23

These figures are significant and easily understood, but it must be kept in mind that in addition to the amount of the various food elements contained there is also to be considered their availability. This is particularly true in the case of whole cottonseed. For, while it is extremely rich in food elements, it will be noticed that the proportion of fat carbohydrates is so large as compared to the protein, that there must necessarily be a large waste of fat in feeding. How, then, can these valuable food constituents be utilized? The question is at once answered by a glance at the elements of cottonseed hulls and cottonseed meal, the one rich in carbohydrates and the other supplying in magnificent liberality the valuable protein with a sufficiency of fat to balance the ration. This naturally brings up the question as to whether the farmers may, with economy, exchange his seed for an equiv-

UNIVERSAL FARMING

alent in feeding materials in the more available form of hulls and meal, and freed from the more objectionable preponderance of fat. Upon this point that standard agricultural journal, "The Southern Farm," of Atlanta, Ga., in its issue of November 15th, says, in reply to a correspondent

Of Nitrogen	61 lbs.
Of Phosphoric Acid	20 lbs.
Of Potash	23 lbs.

One ton (2000 lbs.) of Cotton Seed Meal contains

Of Nitrogen	163 lbs.
Of Phosphoric Acid	65 lbs.
Of Potash	46 lbs.

Allowing that the farmer carries his seed to the mill and gives the oil as toll, he should carry back with him the resulting product, in meal about 750 lbs., and about 900 lbs. of hulls.

It is a common question whether this is a profitable exchange for the farmer.

.

It is an accepted fact that the oil has no value as a food. It is pure carbon, and beyond supplying a little temporary heat has no other effect.

But undoubtedly a farmer can feed more economically in using meal and hulls than in feeding purely the raw seeds.

In exchanging the seeds for the meal the farmer does not dispose of any of the valuable elements—nitrogen, potash and phosphoric acid. The 750 pounds of meal contains within a small fraction all the nitrogen that was in the ton of seeds.

What price, then, should cottonseed command when cottonseed meal is held at \$16.00 per ton?

The 750 lbs. of Meal from the ton of seed at 75c per 100 lbs.....	\$5.62
Add 900 lbs. of hulls from this ton of seed, at 15c per 100 lbs.....	\$1.35
Cash value of the ton of seed.....	\$6.97

At these relative values the mill would get the product of oil (30 or 35 gallons) to pay for the cost of grinding. At 20c per gallon this would give the mill \$6.00 to \$7.00 margin to cover all its expenses and profits.

Protein and Fat Constituents of Fifty American Feeding Materials With Their Rank in Feeding Values.

From Experimental Station Bulletin No. 11, United States Department of Agriculture, compiled from many analyses by E. H. Jenkins, Ph. D., and A. L. Winton, Ph. D.:

	Ni.	Ph.	Pro.	Fat
Pure Cotton Seed Meal.....	50.81	18.01	68.82	1
Pure Linseed O. P. Meal.....	28.90	7.10	36.00	3
Buckwheat Feed	32.90	7.90	40.80	2
Grano Gluten Feed	29.40	6.30	35.70	4
Gluten Meal, A1	29.41	6.26	35.67	5
Fresh Dried Brewers' Grain.....	19.90	5.60	25.50	6
Clean Malt Sprouts	23.20	1.70	24.90	8

UNIVERSAL FARMING

Oat Feed	16.00	7.10	23.10	8
Winter Wheat Bran	16.00	4.00	20.00	10
Medium Fine White Middlings	15.60	4.00	19.60	11
Clean Standard Wheat Bran.....	15.40	4.00	19.40	13
Standard Hominy Feed	9.80	8.30	18.10	14
Germ Meal	9.80	7.40	17.20	15
Clean, Coarse Wheat Bran.....	12.90	3.50	16.40	18
Clean Wheat Screenings	12.50	3.00	15.50	19
Clean Barley Screenings.....	12.30	2.80	15.10	20
Corn and Oat Chops No. 1 Straight.....	9.60	4.40	14.00	23
Fancy Heavy Wheat Middlings.....	10.48	2.07	12.55	25
Corn Meal	9.17	3.17	12.34	26
Rye Feed	10.39	1.71	12.10	29
Winter Wheat Middlings	10.68	1.22	11.90	30
Clean Corn Bran	6.94	3.97	10.91	32
Cotton Seed Hulls	4.76	3.80	8.56	37
Fresh Wet Brewers' Grain.....	5.40	1.60	7.00	39

GRAINS

Cow Peas	20.75	1.44	22.10	9
Oats	11.80	4.96	16.76	16
Barley	12.37	1.84	14.21	22
Wheat	11.87	2.09	13.96	24
Buckwheat	10.02	2.24	12.26	27
Rye	10.58	1.66	12.24	28
Corn	6.83	3.34	10.17	34

GREEN FODDER

Alfalfa Lucern	4.84	.97	5.81	42
Red Clover	4.41	1.13	5.54	43
Kentucky Blue Grass	4.12	1.30	5.42	44
Timothy	3.06	1.19	4.25	46
Orchard Grass	2.61	.90	3.51	48
Corn Silage	1.67	.79	2.46	49
Corn Fodder	1.82	.54	2.36	50

HAY.

Cow Pea Hay	16.57	2.90	19.47	12
Alfalfa Lucern	14.28	2.15	16.43	17
Red Clover	12.32	2.32	14.64	21
Mississippi Bermuda Grass.....	9.16	1.83	10.99	31
Orchard Grass	8.09	2.60	10.72	33
German Millet	7.46	2. 2	9.08	35
Kentucky Blue Grass	5.84	3.02	8.86	36
Timothy	5.87	2.47	8.34	38
Oat Straw	3.42	1.30	4.72	45
Corn Fodder	4.47	1.57	6.04	41
Wheat Straw	3.42	1.30	4.72	45
Rye Straw	2.98	1.22	4.20	47

NOTE—PROTEIN is the nitrogen-containing albumen-like substance of plants, similar in composition and character to the white of an egg. It is the most costly form of food, and, generally speaking, has for its function the formation of FLESH AND MUSCLE.

FAT is the Fat or Oil of the material, and its office is the production of fat and heat in the animal system.

Whether this is too much for the mill is a question we cannot answer. If called upon for an opinion, we would say it was not from the fact that we would rather have the 750 lbs. of meal and 900 lbs. of hulls, either for feeding or fer-

UNIVERSAL FARMING

utilizing purposes, than the original ton of seed. It is easier to adjust a ration with the separate materials. * * * A safe and proper ration of Cottonseed Meal for milch cows depends somewhat upon the size of the animal. At some of the experiment stations 6 to 7 lbs. has been fed without bad effect.

ADDITIONAL TESTIMONY.

At a meeting of the South Carolina Live Stock Association held at Columbia, S. C., on February 8th and 9th, an address full of practical advice, backed by scientific knowledge, was delivered by the eminent Dr. Tait Butler of Raleigh, N. C., on "Practical Stock Feeding in the South." Dr. Butler is a recognized authority on feeds and feeding and what he says should have a special weight and influence throughout the entire South, and that part of his discussion touching the feeding of horses, mules and colts is of special importance to the Southern breeder.

In the official report of the general discussion which followed Dr. Butler's address, this occurs, Dr. Butler was asked:

"You speak of feeding horses cottonseed meal. What about the muscular forming properties of cottonseed meal, on the animal compared to corn and oats?"

Dr. Butler: "There is enough known about feeding horses cottonseed meal for me to state that if you had a horse that you were feeding 14 pounds of corn daily, that you could take out four pounds of that corn and put in two pounds of cottonseed meal and get better results. Not because corn is not the best feed we have for supplying heat and energy, but there is another thing needed. When that horse supplies you muscular energy he is burning up his muscles just as you burn coal in a furnace to supply energy to run the machinery in your factories, and he has got to have something to build up those wasted muscles, and corn does not contain it in sufficient quantity. A little cottonseed meal is better than an additional amount of corn. When you are already feeding your horse clover and ten pounds of corn, I would rather have two pounds of cottonseed meal added than four pounds of corn. I would rather have two pounds of cottonseed meal added than four pounds of oats. Corn is a splendid horse feed, but we are wasting two million dollars a year in South Carolina feeding an all corn ration."

"In what proportion would you feed corn and cottonseed meal?"

Dr. Butler: "That will depend upon your hay."

"Plenty of hay?"

Dr. Butler: "An average ration for a thousand pound horse, doing real hard work, is about 15 pounds of grain and 12 to 15 pounds of hay. Instead of 15 pounds of fodder and 15 pounds of corn, I would take five pounds of peavine hay and 7 to 8 pounds of clover and then add ten pounds of corn and two pounds of cottonseed meal, and get better results. If I had oats to feed and had some peavine hay or clover hay, I do not think I would feed any cottonseed meal at all, because it is bad to feed unless you can mix it with something else. If I did not have any peavine or clover hay, I would certainly put some cottonseed meal in the ration of a hard working horse, unless I had plenty of oats, and they were cheap."

This is important testimony from the highest authority, and should interest every farmer and horse owner in the South. We send thousands of dollars into the Northwest every year for corn; we send into the Northwest every year thousands of dollars worth of cottonseed meal. Nobody is benefitted by this. If we keep our cottonseed meal at home to feed it will help us, and Dr. Butler says it will help our horses—and Dr. Butler knows.

UNIVERSAL FARMING

FEEDING COTTON SEED MEAL TO DAIRY COWS.

So much, all of it commendatory, has been written about cottonseed meal as a dairy food, indeed the greatest of them all, that I need not do more than refer to the fact.

Prof. Henry of Wisconsin, the greatest friend of the dairy cow, says: "Not only is dairying the leading animal industry of our country at this time, but so it must continue indefinitely for the reason that the cow is a more economical producer of food for human beings than is the ox or the pig." Very recent experiments at the South Carolina Station prove that for indefinite periods a ration of as much as six pounds of cottonseed meal a day may be fed, the results being wholly beneficial to the animal and her products. Half this amount fed daily to the 3,337,000 milch cows of the South would clean up our 1,400,000 tons of cottonseed meal in nine months.

COTTON SEED MEAL AS A FLESH PRODUCER.

The next use of cottonseed meal is in feeding it to cattle and hogs for the production of flesh. By this commendable use of meal we lose only 10 per cent of its manurial value and gain the increased weight and the better quality of the animal.

Booker, in *Flour and Feed*, gives the following statement, based on a report of Jenkins of the Connecticut station, showing the relative value of nitrogen, phosphoric acid and potash in wheat bran, corn meal, linseed meal and cottonseed meal:

	Nitrogen	—Pounds—	
		Phos.	Acid Potash
Wheat bran contains.....	47.4	60.2	32.0
Corn Meal contains.....	20.0	12.8	8.0
Linseed Meal contains.....	106.0	33.8	20.2
Cottonseed Meal contains.....	134.6	60.6	25.8

Taking the nitrogen at 17c per pound, phosphoric acid at 6c per pound, potash at 4½c per pound (all of which are low values), gives the following as manurial values:

Wheat bran	\$13.03 per ton of 2000 Lbs.
Corn meal	6.04 per ton of 2000 Lbs.
Linseed meal	21.55 per ton of 2000 Lbs.
Cottonseed meal	28.04 per ton of 2000 Lbs.

In feeding, the animal retains from 5 to 20 per cent. of the above elements, so that, taking 20 per cent from the above values, and taking:

Wheat bran at	\$22.00 per ton
Corn meal at	24.00 per ton
Linseed meal at	28.00 per ton
Cottonseed meal at	27.00 per ton
It costs to feed	
Wheat bran	\$11.57 per ton
Corn meal	19.16 per ton
Linseed meal	6.45 per ton
Cottonseed meal	4.56 per ton

when the manurial value is utilized or realized.

UNIVERSAL FARMING

U. S. Consular report of October 9, 1906, says: "The fact that Germany, Denmark and the United Kingdom import \$12,000,000 worth of cottonseed cake and meal from the United States annually is evidence enough as to its worth because they are the expert cattle feeders of the world." I do not believe, gentlemen, that any one in any country can use cottonseed products (meal and hulls) so cheaply as you can, if you use it scientifically. You raise your stock, you own your land, and can get the nutritive value first at a nominal cost and can utilize the manurial value.

It will be seen from the foregoing statements that cottonseed meal contains by a large percentage a greater amount of nitrogen (protein) than any other food. It is, in fact, the most concentrated, cheapest and most nutritious of foods, and in feeding, mixing it with hulls, bran, hay or other feeds it produces an ideal food. There is nothing doubtful or experimental in this when the proper ration is given. It would be wasting time to talk to you about the wonders of cottonseed meal as a food for animals. Its praises are sung by the chemist in his laboratory as he proves its marvelous analysis and by the skilled feeder in the competitive tests. The story is told in a thousand agricultural and experimental reports and in innumerable works on nutrition and feeds. There is but one side to the case.

I do not wish to worry you with details, but I cannot refrain from placing cottonseed meal and a few other foods side by side, that you may at a glance compare the mountain and the mole hill.

DIGESTIBLE MATERIAL IN FEEDSTUFFS.

Dalrymple, in the Louisiana station, gives the following table, showing the digestible material in ten pounds of each of the following feedstuffs:

	—Pounds—		
	Protein	Carbohydrates	Fat
Wheat bran	1.21	1.92	.27
Oats93	3.75	.36
Cottonseed meal	3.72	1.69	1.22

"Of course, every one knows that protein and fat are the elements that count and that cost. Carbohydrates are all right, but 'the woods are full of it.' We find it in every old feedstuff."

Lamborne based the statement upon many actual tests that one pound of cottonseed meal is equal to 1 3-4 pounds of corn, a ton or 2000 pounds of cottonseed meal is equal to 3500 pounds of corn, hence when corn is worth 50c per bushel, a ton of cottonseed meal is worth \$31.50. When corn is worth 60c a bushel, a ton of cottonseed meal is worth \$37.50. When corn is worth 70c a bushel a ton of cottonseed meal would be worth \$43.75. When corn is worth 80c a bushel, a ton of cottonseed meal would be worth \$50.00.

I am not taking a shot at corn, the world's greatest cereal; I am only demanding for cottonseed meal that constitutional right accorded every citizen, a fair trial and an honest verdict.

The dearest, the scarcest, the most necessary element in plant life is nitrogen. There are silver, gold and diamond mines in various parts of the globe, but alas, only one nitrogen mine in all the world—think of it—and the quantity is growing less and less every day.

Distinguished chemists are working day and night trying to produce nitrogen on a commercial basis. To date all their efforts are futile. The plants only know the secret. They steal the illusive, volatile nitrogen from the air, the water, the soil and the greatest nitrogen catcher of them all is the cotton plant. All the nitrogen the animals get, the plants first found and gave them.

UNIVERSAL FARMING

The South is not a grain country, they say. Maybe not, maybe we are so busy making cotton to clothe the world that we haven't time to bother with grain; but while we are making humanity's raiment the Lord is showering down upon us a manna richer than that which He made to fall upon the Jews on their pilgrimage from Egypt to Jerusalem.

TO IMPROVE THE QUALITY AND INCREASE THE QUANTITY OF BUTTER.

Heat a quantity of GOOD DEODORIZED COOKING COTTONSEED OIL to about blood heat, and just before beginning to churn, add to the milk, using about one-third of a teacupful to each gallon of milk, and proceed as usual.

Good Cooking Oil can be bought from any progressive grocer at about sixty cents or less per gallon, which is about 8 cents per pound.

A three-gallon churning of rich milk will take about half a pound of Oil. It will hasten the coming of the butter, assist in its better collection, improve the quality of both it and the buttermilk, and being returned as butter will give with the better collection of the butter fat an increased yield slightly in excess of the weight of the oil added and profit equal to the difference between the selling price of the butter and the cost price of the Oil. But this is by no means the major advantage of the practice. This is to be found in the decreased time and labor in churning and in the improved flavor and softened texture of the butter and buttermilk.

NOTE—The quantity of oil to be used will be influenced by the percentage of butter fat in the milk and the temperature of the weather. Hence, the richer the milk, and the colder the weather the greater the quantity of Oil. It must be remembered too that under the operation of that disgrace to American legislation, "the Oleomargarine law" butter so treated is classed as "manufactured butter," and cannot be sold except as such.

CORN AND COWPEAS A FINE SILAGE.

We filled one silo last year with corn and cowpeas. It took 11 acres to fill a 120 ton silo and the silage is the best I have ever used or seen anywhere. The corn and whippoorwill cowpeas were planted in the same row. In planting, corn was put in one box and cowpeas in the other. We drove through and came back the same rows, thus planting both kinds of seed in each row. When the corn was right for siloing there were ripe cowpeas, green pods and blossoms all on the same vines. We cut this crop with a six-foot mowing machine, taking two rows. The cornstalks averaged twelve feet high with good ears that would have made thirty bushels to the acre, and the pea vines were as tall as the corn. Another job of filling was done with a late crop of corn and cowpeas planted the same way, but cut with a corn binder. We then went over it with a mower and raked up what was left. This proved to be a cheaper way than cutting, and we expect to follow this plan hereafter. We consider corn and cowpeas handled this way to make as near a balanced silage ration as can be had. Fed with a small amount of hay or shredded fodder it would make an ideal food.—C. S. Perkins, Oswego, Kans.

LAXATIVE FOR COWS.

If the cows need a laxative, oilmeal is better than any kind of salts. Like ensilage and roots, it is a natural laxative and helps to keep the cow in healthy condition. When an animal is run down from wrong feeding a medicine has little value. It is only by right feeding and clean, well-ventilated quarters and good care that health and vigor may be restored.

UNIVERSAL FARMING

TO AVOID SCOURS IN PIGS.

A good remedy for scours in pigs consists in dissolving a chunk of quicklime as big as your two fists in a bucket of water. Stir well and allow it to settle. Give from one to two quarts of the clear liquid to each sow at feeding time, twice a day if necessary. Begin soon after farrowing time and give two or three times a week as a preventive.

HOW HOGS ARE SALT POISONED.

It is an accepted fact that salt is poison to pigs, and pretty deadly, too, if taken in any material quantity. But often deaths are assigned to other than the true causes in cases where salt is the agent. It will be said, perhaps, that no brine or salt in any form has been disposed of from the house for a considerable period before deaths may have occurred, and that any mortality may not be attributed to the poison. It, however, often happens in this way: Salt is occasionally carelessly put in the hog tub or may be brine with salty sediments. The slowly soluble salt settles at the bottom of the tub, so that it is only when the dregs are taken out that the poisoning takes place. Some tubs and cisterns are not really emptied for months, and then is the time that salt poisoning may occur.

THE HOG AS A SOIL RESTORER.

It is usually thought to be a bad thing to sell grain off the farm and the man who feeds all the grain he raises is praised as one who is keeping up his farm. But when this grain is fed to hogs in a dry lot is it true that much good results to the soil? We cannot see where any fertility gets back to the fields from which the grain was taken. But should the grain be fed to hogs that have the run of the fields the soil is being kept up if not actually increased in fertility. We may say that we cannot get something for nothing but it is a fact that corn may be raised year after year on a field and if that corn is "hogged down" or fed where it grew the soil will gain in fertility and will produce larger crops at the end of a series of years than at the beginning. To keep up the soil on the farm where the most of the grain is fed to hogs it is necessary that the fields be fenced hog tight, and that the hogs have the run of them whenever possible.

The fertilizing value of hog manure is above that of all other manures. A 300-pound hog produces manure of a total yearly value of \$8.00. Hence you see the by-product is almost as valuable as the hog. Remember, the great trusts made their money chiefly out of by-products. You can do the same.

Keep a drove of hogs, say about twenty, in a quarter of an acre in close; never turn them out. Give them good shelter and enclose the shelter and have it high and dry. A hog never likes to lie out in the rain or cold winter or summer weather. This neglect robs the United States of many millions of hogs every year.—John Kasmeier.

SHEEP "FINISH" RAPIDLY.

Sheep may be put through a feed lot and made in condition for the butcher in ninety days, but with cattle it is a longer process. No other stock will make the same showing that sheep will with the same care in the same time.

UNIVERSAL FARMING

THE MULE COMPARED WITH OTHER STOCK.

The mule is the most valuable animal on the farm, no matter how he may be compared. In growth and development he beats the horse; in service the mule team beats the horse team; in cheapness of keep he comes out ahead of the horse, and he does also in ability to stand rough care and hard usage.

In average selling price he excels everything on the farm. The average value of the hog on the market is \$6.55; that of the sheep is \$3.43; that of a beef animal is \$17.49; that of a milch cow is \$32.36; that of the horse is \$98.64, while the mule stands above them all with an average value in this country of \$107.84. A team of first-class heavy mules often sells for \$500. And it does not cost so much to raise a mule as it does to raise a horse.

Mr. R. A. Moore of the Wisconsin experiment station recommends the following rotation: Clover, one year; timothy and clover, one year; peas, one year; small grain, one year, and back again to clover. Or the timothy and clover may be omitted and cultivated crop substituted. When this is done the manure should be applied to the cultivated crop, otherwise apply it to the timothy and clover. Where peas are to be sold directly from the farm, it is advisable to feed the other grain crops on the farm. Continuous cropping with peas encourages bad weeds and fungous diseases.

In the case of new land, however, it is advisable to raise peas twice in succession, so that the ground may become rich in the bacteria that aid in the best development of the pea crop. As a rule, these bacteria are lacking in new soils, but will be present in unlimited numbers the second year the field is cropped to peas.

When seeding new lands it is well to scatter a load of soil per acre taken from a field where peas have been successfully grown. This will enable the plants to develop the nodules which contain the beneficial bacteria. Under normal conditions of continuous cropping, grow the peas in rotation with other crops.

Always sow close to your hog lot in the fall a good patch of wheat or oats. This gives you a fine grazing for your pigs, hogs or brood sows. In the middle of June throughout the cotton belt if you desire break up said pasture good and deep and plant it in sorghum, Kaffir corn or Mexican June corn. This will make you under favorable season a full crop.—J. K.

CRUDE PETROLEUM.

Crude petroleum is a good paint for the iron work of wagons, machinery and tools. It is almost as cheap by the barrel as water.

The U. S. Department of Agriculture well knows the evils of surface farming; so do some of our first agricultural states, and they have been trying to encourage good agriculture by offering prizes for corn contests. Who won these contests? Was it the six-inch plowers? From 102 to 205 bushels of corn were raised by the new generation who are taking these lessons to heart and plowing from 12 to 21 inches.

VALUE OF THE TOAD.

The prodigious appetite of the toad is advocated for the sure cure for the scourge of grasshoppers in the far west. A Scotchman near Greely, Colorado, proposes to start a toad farm on his ranch and sell the products. He asserts this is a common practice in Europe.



This illustration is from an actual photograph of a truck garden in the
Gulf Coast Country of Texas.



Legumes of all kinds grow wonderfully in the Gulf Coast Country of Texas,
as evidenced by above photograph.

UNIVERSAL FARMING

We never know the worth of water till the well is dry, nor the worth of food till the cost of living is high.

SALT FOR COLICKY CALVES.

Calves should be allowed to run on pastures as much as possible. It provides exercise, and they do much better than if kept up. Many a good calf has been ruined by under feeding, and this is no less true of over feeding. That is the reason we have adopted a medium ration and stick to it. Handfed calves sometimes have colic but it is not often fatal. Two tablespoonsful of common salt in a pint of water used as a drench never fails to give prompt relief.

Plainview, Colo.

HOT WATER FOR INFLAMED UDDER

When the cow comes fresh if the udder is swollen or inflamed bathe it in water as hot as the hand can bear. It will relieve her, and she can be more easily milked. Try this, too, sometime, when she holds up her milk. It almost always works.

Grouse, Ore.

MRS. GUS SMITH.

STARVING RUSSIANS EAT OWN CHILDREN.

St. Petersburg, March 13, 1911.—Horrrifying stories are reaching this city from the famine zone in Central Russia where nearly 4,000,000 persons are starving. In one of the communities the situation has become so desperate that mothers and fathers have killed and eaten their own children. Gaunt, starving peasants and women, emaciated and frenzied from suffering, fight over crusts and bones. All the public granaries are empty despite government measures. No general relief is in sight.

SUBSOIL THE GRASS LANDS.

The grass in that upland meadow is not doing what it should. The sod is so hard that but little of each rainfall penetrates it.

From two to five times as much grass or hay could be produced by going over it with a subsoiler, the kind that makes a slot in the sod and soil 15 to 20 inches deep—it does not throw up any earth—merely presses it aside. These slots should be from 12 to 20 inches apart and cut across the slope or grade, keeping the bottom of the slot as near level as possible so as to retain all of the water.

Run the subsoiler as deep as your power will draw it. Don't be afraid of getting the bottom of this furrow or slot down into the clay. The grass roots will go to the bottom of it and ultimately convert this clay into soil.

It will cost you about \$1.00 per acre to subsoil your meadow or prairie lands and the results will last from three to six years, when you should again subsoil.

If you are not satisfied with that prairie grass you are now raising, then attach a seeder to the subsoiler and put in blue grass or Bermuda grass, either of which will predominate within a year or so.

In some respects this is the most important subject treated in this book. Not only should every farmer try it on his upland grass and meadow lands, but it is applicable to all of the public domain where grass grows or can be made to grow.

The President of the United States has suggested the expenditure of \$50,000,000 or more, to prevent the overflow of the Mississippi river. If the government would use part of this sum subsoiling its western prairies and plains, as outlined here,

UNIVERSAL FARMING

the assistance it would get in the work on the part of the various states, railroads, great corporations and individuals, would within a few years effectually check any more flood flows from the west. The increased grass growth thus created would feed all the cattle of a continent.

This may look a stupendous undertaking on the part of the government. If Uncle Sam had not "shook his fist" at so many of the large corporations, they would be glad to take this whole task off his hands, pay me handsomely for showing them this opportunity, and not only make billions of profit for themselves but furnish us plenty of meat, as cheap as twenty-five years ago.

If by subsoiling, I am able to make prairie grass grow three and four feet high on my farm, instead of six to 12 inches, where not subsoiled, then the same increase of grass crop can be had in all the western grass regions. The government or great corporations could subsoil much more cheaply than I, because they would use the traction engines with gangs of subsoilers. Here is a conservation plan that is very simple and easy of application. It would give thousands of men permanent employment and result in an abundance of meat for everybody.

Fellow farmers, the above is good advice for Uncle Sam, but he usually takes a long time to think and talk over such an innovation, and besides, it is an Oklahoma method—ultra-American—at present Uncle Sam is looking, and sending commissions, to Europe to learn how to farm, finance, govern, and do nearly every human activity, in the meantime we farmers should subsoil our grass lands and get the "cream" off of the business before Uncle Sam gets into it. Remember by subsoiling you can raise good alfalfa on your uplands.—John Kasmeier.

SEWERAGE.

To the United States and to the States:

You must put an immediate stop to your municipalities wasting and destroying the sewage, the most of which would make a fertilizer of great value. You shake the foundations of the government telling the trusts and railroads what they must do and not do, but permit your cities to continue a more important infraction of law, economic law, than those other corporations. The farmer needs this by-product of the city; the railroad needs the back haul and we will pay for the fertilizer. I will buy it, my neighbors and those using my methods will buy. The demand is unlimited.

PIT SILOS.

Make them of cement the same as a cistern. They will be found invaluable by all fruit and vegetable raisers.

Apples and potatoes should be ground before putting in the silo. Peaches may be put in whole.

I presume you need not be told that this silage will fatten your hogs quicker than distillery slops.

To remove silage for feeding use an elevator.

TO THE BANKERS.

You have often been misunderstood and misjudged by the farmers and public in general, who do not see or understand the conditions you have to meet. Eternal vigilance is the price you pay for being ready to withstand a contraction or a panic. In turn, many of you have misunderstood the conditions and problems that

UNIVERSAL FARMING

confront the farmer. The most of you are college men, and all of you are students, hence should lend a hand and help to solve some of the farm problems, not only to be able to help the farmers, but to help yourself financially, physically and morally.

You should own and operate a farm, and it should be the best operated farm in your community. If you follow my method it will be a scientific experimental station convenient to every farmer in the county and will pay you a better direct return on your investment than the most of those notes in your vaults.

Don't fail to teach your children, both boys and girls, practical farming. They will live to see the day when the best farmers will, financially and socially, rank above what we now call the learned and business professions.

Government statistics show that the foodstuffs imported by the United States in the eight months ending with February 1910, were valued in the aggregate at \$262,000,000, as compared with \$244,000,000 for the same period of 1911 and with only \$145,000,000 for the same period of 1902. This shows that such imports have almost doubled in value in ten years.

Part of this apparent increase in the American appetite for foreign foods is due to the increased cost of foodstuffs in all the markets of the world but in great measure is due to the increase of our city-dwelling population and the relative decrease in the production of our farms. In the item of breadstuffs, the imports have tripled in value in the ten years.

This means that we are no longer an agricultural nation engaged in feeding the world. Our exports of raw products are still very large, but they decrease steadily, and our exports of manufactured wares as steadily increase. This is the thing that is working many of the vital changes in our social constitution that are so puzzling to some statesmen.

FOR SNAKE BITES.

In case of snake bite catch a chicken, a black one is best. Don't kill it, but take a sharp knife and split at the breast back and put it over the snake bite. The chicken will turn green. Repeat this process with fresh chickens until they fail to turn green.

THE INDIAN RUNNER DUCK.

There is no duck so hardy for the farm as this breed. They lay large white eggs, rich in protein content, valuable for food or cake baking, and readily sellers on the market. The middle of May is plenty early to have the young ducklings appear. They grow fast and weigh from 4 to 5 pounds in 8 or 10 weeks and may be marketed while the price is good, and young duck roasts are in demand in the city restaurants. All surplus stock should be marketed as soon as mature, for a duck will soon eat up its profit when growth ceases. The market is poor for the overfat or the old flabby fat duck.

SWEET PICKLED GREEN TOMATOES.

1 bushel green tomatoes, 1 peck **small** white onions, 10c mustard seed, 10c all spice, 5c cloves (whole), 5c bruised ginger 10c whole mace, broken small, 4 table-spoonsful ground cinnamon, 4 table-spoonsful celery seed 1 gallon cider vinegar, 1 gallon water, (or enough to cover well the vinegar and water); sweeten with **brown sugar**, about 2 pounds, or enough to taste good.

UNIVERSAL FARMING

Cut up the tomatoes in slices about 1-4 inch thick, onions same; put in the spices; cover with vinegar and sugar; boil two or three hours **slowly** until **very tender**. Can while hot.

SUCCESS IN FEEDING LAMBS.

During the few years I have been feeding western lambs I have been led to the conclusion that the foundation upon which the most successful operations must rest is grass. By this I mean not only bluegrass, but clover and alfalfa as well. It is not only beneficial to the lambs, but grass feeding is the best way to keep up the fertility of the soil or to improve a wornout farm. Sheep manure put on with a spreader is quite stimulating to grass, and good sod turned under in its turn brings good crops of corn and wheat. For best results in handling the lambs they must be protected from the wind, fed hay and grain regularly twice a day, just a little less than will be eaten up clean, and given all the clean, pure water they will drink. They need a little salt daily, and the lots should be kept clean with plenty of bedding.—B. D. Lemert, Severance, Kans.

One of the important functions of lime that is often overlooked is that it prepares land for leguminous crops. There are many types of soil not adapted to growing such crops as alfalfa, clover, vetch, soy beans, etc., because of the acid condition of the land or because of the lack of micro-organisms that are essential for leguminous crops. Often by the use of hydrated lime the soil may be prepared for these bacteria and hence the legumes grown. Lime is a very useful amendment of stimulant for soil and its use ought to be more common.

Most of the methods of "breaking up" hens from setting are cruel and fire and distress the innocent hens who are not to blame for their instinct. The kindest way is the following: When it is necessary to stop the inclination, place the hen in a nice clean coop, alone, with fresh grass, and all the fresh meat cut fine that she will eat. The meat immediately increases the egg nourishment, and while the hen is having a really good time, she is fast preparing herself to commence laying eggs. It will take but two or three days before she forgets all about sitting, having other affairs to attend to.

The quail is the farmer's friend and should be protected by him, instead of being slaughtered, as they are the best exterminators of worms and insects in the fields.

Helen Gould has brought about, through the legislature in several states, laws forbidding the killing of quail for five years. This should be adopted throughout the United States—then watch the insect go. It has been figured out that they destroyed in one eastern state alone 3,200 tons of insects. Thanks to Helen Gould and watch those birds help us make a crop.—J. K.

Now, kind Reader, if we study and practice this little book and ask the Almighty Creator for his blessings and for Him to dwell with us, we are then bound to prosper, for Christ says, "Whatever you shall ask my Father in My name, it shall be granted."



The two seasons: Hunting and gardening. This crack shot of the Gulf Coast of Texas will tell you how to hunt rabbits in the cabbage fields of January, when the Northerner will look upon the snow-clad patch of ground behind his house. Here is sport for young and old.



Gulf Coast of Texas, the paradise of the state, where good old "Sol" does the work without expense to you. Is it any wonder that the roses bloom perpetually? This clergyman thinks there is no better recreation in leisure moments than tending a little garden patch. Notice his singular way of tightening the garden fence.

UNIVERSAL FARMING

An appropriate prayer for anyone, no matter what occupation he is engaged in.:

A RAILROAD MAN'S PRAYER.

"Oh, Lord, now that I have flagged Thee, lift up my feet off the rough road and plant them safely on the platform of the train of salvation. Let me use the safety lamp known as prudence, make all the couplings on the train with the strong link of Thy love and let my hand lamp be the Bible; and, heavenly Father, keep all the switches closed that lead off on sidings, especially those with a blind end. Oh, Lord, if it be Thy pleasure, have every semaphore light along the line show the white light of hope, that I may make the run of life without stopping. And Lord, give us the Ten Commandments for a schedule; and when I have finished the run on schedule time, pulled into the great dark station of Death, may Thou, the Superintendent of the Universe, say, 'Well done, thou good and faithful servant, come and sign the payroll and receive a check for Eternal Happiness.'"

THE BEST SEED A NECESSITY.

That the best crops are grown from the best seed, every one believes. Yet how indifferent in practice are some of us to the necessity of securing the best seed-corn for our own use, an indifference that is probably the most costly of all our faults.

NOTES OF INTEREST.

The first tariff was in 1789.

Silk was first made in 1850.

Homeopathy was introduced in 1825.

Women first voted in Wyoming in 1870.

The phonograph was first heard in 1877.

Sewing machines were first used in 1846.

The patent right law was enacted in 1790.

The first steamboat plied the Hudson in 1807.

The first adoption of standard time was in 1883.

The capital was established at Washington, 1800.

The first canal was opened in 1804, in Connecticut.

The first dental office was opened in New York in 1788.

The first assay office was established at New York in 1851.

The Department of Agriculture was made an executive one in 1888.

In 1767, William Lyle, of New York, made the first hot-air furnace.

The first President, Washington, was inaugurated April 30, 1789.

UNIVERSAL FARMING

Cotton was first raised in Virginia in 1621, and first exported in 1747. The first cotton mill was operated in New Hampshire, 1803.

The first discovery of petroleum was in 1860, in Pennsylvania.

Iron was discovered in Virginia in 1715, and gold in California in 1848.

The first ship to carry our flag around the world was the ship Columbia, 1780-1790.

The first woman to write M. D. after her name was Elizabeth Blackwell, in '849.

The first woman lawyer was Miss Mansfield, who hung out her shingle in '869.

The first agricultural fair was held at Georgetown, District of Columbia, in 18 0.

The first telegraph message was sent from Washington to Baltimore, May 27, 1844.

Vaccination was introduced into the United States in 1800 by Dr. Waterhouse, of Harvard University.

To Connecticut belongs the honor of establishing the first experimental station. This was in 1875.

The first State to add a star to the constitution of thirteen was Illinois, admitted December 3, 1818.

The first bridge of any kind erected across the Mississippi River was completed in January, 1855, at Minneapolis.

The first hospital was erected in Pennsylvania, February 7, 1751. The Pennsylvania Hospital it was called.

The first patent on a stove for burning anthracite coal was taken out by Anthony Savage, of Pottsville, Pennsylvania, in 1830.

The first voyage of an American vessel around the world was made by the ship Columbia, from Boston, starting September 30, 1787.

Edison's telephone was first used at the World's Fair, Philadelphia, 1876, but it was two years later before there was one in public use.

The first steamer, the Savannah, crossed the Atlantic, from Savannah to Liverpool, in 1819, starting May 24 and crossing in twenty-five days.

The Weather Bureau was established in 1870, Increase Lapham and Henry Paine framing the law which established the signal office at Washington.

As an example to show how our land is wasted, Germany with all her 60,000,000 people could live in Oklahoma and the entire population of the United States could live and prosper in the state of Texas and would have products to export if the proper scientific methods and care were used in farming the soil.

The quail is the farmer's friend and should be protected by him, instead of being slaughtered, as they are the best exterminators of worms and insects in the fields.

UNIVERSAL FARMING

Kind Reader, this book shows you that there are millions of acres of land ruined all on account of the neglect of Uncle Sam in not taking up the system of the noble Southern farmer, before the Civil War. Who took care of the precious soil by making circle ditches and water furrows, so he could feed his present population, and the future generations, by preserving the fertile soil. He knew that it was only a paper title that he held on this land. So when he went to his eternal rest he could turn over this land to his inheritance, just as he received it from the Almighty land owner. That shows that he was not only a business farmer but also a Christian farmer. But what has happened since then, our Government has made no compulsion and you no doubt have helped to slaughter the fertile soil. So is there any wonder at the cost of high living. Now kind immigrant to the soil, of such land we want to guard you. We are sure that if you will come to the Gulf Coast of Texas, in the Diocese of Corpus Christi or San Antonio, we can show you thousands of acres of Virgin soil, that will produce most anything you plant and a stock food that will yield from twenty-five to one hundred tons per acre.

You must take into consideration, if you intend immigrating to the farm, that you will often have to contend with floods and droughts. This occurrence has prevailed throughout the history of the world.

These conditions have prevailed up to the present time, as mentioned above. For instance, two of the Empires of Europe, one Russia, and the other Germany. Russia, in nineteen eleven, through crude farming and drought, lost through starvation, over five million people. Germany on the other hand had over 42 million tons of perishable and staple product, and all through scientific farming and fertilizing.

If you are contemplating on leaving your present location before you go elsewhere, come and see us in Texas and especially, in the Diocese of Corpus Christi, and San Antonio. Wherever you desire to locate look up the ads in this book. We have in these dioceses, some of the finest and most fertile land in the United States, which can be gotten at reasonable prices.

JOHN KASMEIER.

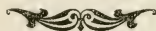


In Conclusion

IN concluding this little treatise, I desire to express my appreciation of the fact that my theories will not perhaps be received enthusiastically everywhere. It may be that some of my readers have far different ideas,—others may have tried approximately the same method that I propose, without success. Far different conditions exist in different parts of the country. Some conditions might not be suitable for the application of the method that I advise. Some farmers after trying some of my methods, may declare them to be a failure. I would respectfully ask, however, that before my methods are condemned that they be tried out fully and in every detail. The first trial may not be entirely satisfactory,—some little essential detail may be overlooked,—but I am confident from my own experience that a careful study and application of these methods will bring sure results. I have tried them in widely varying soils, under different climatic conditions, and in various parts of the South. I have no apology to offer for submitting them to the public, as I have been successful with farming, using these methods, where my neighbors, using other methods, have failed. My friends and the business men who are familiar with my work know that I have made a success of it, and urged me to present my views to the public. I have now done so, and if the knowledge submitted herein benefits only a few of my readers, then I feel that this book will be the success that farming has been with me, under the theories herein set forth.

Respectfully,

JOHN KASMEIER.



Catholic Immigration and Farm Guide



—BY—
Rev. Father Coma

LIBRARY OF CONGRESS



0 003 220 632 3